FECON

FTX-440

Operation and Maintenance Manual

3460 Grant Drive • Lebanon OH, 45036 • Toll Free: 800-528-3113

www.fecon.com

COMMON REPLACEMENT PARTS

The chart below list all the common belts and filters used on the FTX-440. Please reference the Fecon part number when placing your order at 1-800-528-3113.

FILTERS

ITEM	PART NUMBER	DESCRIPTION
1	440-46-005	CAB AIR CLEANER FILTER (INSIDE)
2	440-45-021-01	CAB AIR CLEANER FILTER (EXTERNAL SAFETY)
3	440-45-021-02	CAB AIR CLEANER FILTER (EXTERNAL PRIMARY)
4	440-60-006	HYDRAULIC FILTER (OPEN LOOP SUCTION)
5	44-60-006	HYDRAULIC FILTER (CLOSED LOOP RETURN)
6	440-60-010	ELEMENT FILTER 10 MICRON (CHARGE)
7	44-1R-1808	ENGINE OIL FILTER
8	44-1R-0771	FUEL / WATER SEPERATOR FILTER
9	44-1R-0749	FUEL FILTER
10	44-220-8678	SEAL FOR FUEL WATER SEPERATOR
11	51044-01	PRIMARY AIR CLEANER ELEMENT
12	51044-02	SECONDARY AIR CLEANER ELEMENT
13	11783	FILLER BREATHER FILTER
14	BH203-01	HYD FILTER ELEMENT, SCHROEDER 100GPM

BELTS, LIGHTS, BULBS

11	440-57-053	AC BELT, AX45, 47.2 OUTSIDE
12	44-57-055 (2REQUIRED)	AC BELT, CX90, 94.2 OUTSIDE
13	440-45-006	LIGHT HOUSING, FRONT AND REAR
14	440-45-007	LIGHT HOUSING SIDE
15	440-45-019L	REPLACEMENT BULB, DOME
16	440-45-006L	REPLACEMENT BULB, ALL OUTSIDE FIXTURES

OTHER

17	440-45-005-04	REPLACEMENT WIPER BLADE
18	440-56-005	EXHAUST RESONATOR
19	RT440038	MUFFLER
20	660-21-138	RADIATOR CAP

Thank you for purchasing the FTX-440. Please read the following in order to help FECON process any future Warranty claims that may arise:

The FTX-440 Delivery Inspection Checklists

The Dealer and Operator Delivery Inspection Checklists are to be completed with a Fecon Technician at Delivery of the FTX-440. Upon completion, these forms must be signed.and returned to FECON prior to operation. Fecons receipt of these forms activate your warranty. If FECON does not have these forms on file, warranty claims cannot be processed. Also, make a copy for yourself and keep in your FTX-440 manual.

Fecons Fax number is: 513-696-4431.

The delivery Inspection Checklists are clipped to the front of your manual.

Failure to follow this procedure and turn in the properly completed form will void the warranty. Make a copy of the approved form for yourself and keep in your manual. Our fax number is: 513- 696-4431.

Any questions, please call 513-696-4430 or 800-528-3113.

FTX-440 CONTENTS

SECTION 1-SAFETY

1.0 SAFETY IN THE WORK AREA

2.0 OPERATION INSTRUCTIONS

3.0 PREVENTIVE MAINTENANCE

Safety Alert Symbol

This Safety Alert Symbol identifies important safety messages on machines safety signs, in manuals or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

This Safety Alert Symbol means:

ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!

Why is Safety Important to You?

3 BIG REASONS:

- **ACCIDENTS DISABLE AND KILL**
- **ACCIDENTS COST**
- **ACCIDENTS CAN BE AVOIDED**

WARNING!

DO NOT OPERATE OR WORK ON THE FTX-440 WITHOUT READING AND UNDERSTANDING THIS OPERATION MANUAL.

It is the responsibility of the User / Operator to read and understand this operation and safety manual along with all other safety documentation provided.

Safety is up to you!

You can prevent serious injury or death

IF THIS MANUAL IS LOST OR IF YOU HAVE ANY QUESTIONS, CONTACT FECON OR YOUR DEALER BEFORE YOU PROCEED.

FECON, Inc.

3460 Grant Drive

Lebanon, OH. 45036

800-528-3113

SECTION 1: SAFETY

1.1 General

The FTX-440 with the attached Bull Hog 350, is designed to process heavy organic material such as branches, stumps heavy timber and brushwood. The machine may be used in forests for land clearing and cultivation.

NOTE: The FTX-440 is only to be used for its designed purpose. Any modification to the machine will void the Warranty.

Damages due to any misuse of the FTX-440 will void the Warranty.
Consult your State and Local governing bodies for regulations on operating or transporting organic processing equipment.

DO NOT OPERATE OR WORK ON THE FTX-440 WITHOUT READING AND UNDERSTANDING THIS OWNERS/INSTRUCTION MANUAL. IF THIS MANUAL IS LOST OR IF YOU HAVE ANY QUESTIONS, CONTACT FECON OR YOUR DEALER BEFORE PROCEEDING.

OBEY ALL SAFETY LABELS ON THE FTX-440. THEY ARE PROVIDED FOR YOUR PROTECTION. IF ANY LABELS ARE REMOVED, DAMAGED OR MADE UNREADABLE IN ANY WAY, CALL YOUR FECON DEALER FOR A REPLACEMENT AT THE NUMBER BELOW.

FECON, Inc. 3460 Grant Drive Lebanon, OH 45036

1-800-528-3113

Read and follow these Safety Instructions!

PRIOR TO OPERATION:

- Read the owners manual in its entirety and follow all safety procedures.
- Check all fluid levels in the 440 unit per the owner's manual.
- Check PTO Gearbox oil level on BH350-PTO mulcher
- Check all grease points per the owner's manual.
- Check all fasteners on BH350-PTO mulcher for tightness

1.2 Operational Safety/ The Operator

The FTX-440 is designed to handle the most rugged of forestry applications. It is certified with the following safety protection systems:

Operator Protective Structure (OPS)
SAE J1084 SEP2002
ISO 8084 2003-05-01
Rollover Protective Structures (ROPS)
ISO 8082 2003
Falling Object Protective Structures (FOPS)
ISO 8083 1989

The FTX-440 Cab is equipped with ½" Marguard Lexan® polycarbonate on all four sides. Proper maintenance is imperative to the safe operation of the machine; all windows must be replaced with ½" Lexan® or a polycarbonate equivalent if there are any signs of excessive scratching, cracks, visible stains, indentations, or any other sign of wear and/or damage.

The FTX-440 is also equipped with a fully adjustable seat and harness system. The seat is equipped with at electronic seat switch that will deactivate all joystick functions, disable the PTO output, and apply the parking brake if the operator is not present in the seat.

Along with these safety features incorporated into the FTX-440, it is the operator's responsibility to implement and monitor proper safety. Every job and application must be evaluated on a case by case basis to determine the need for additional safety procedures and equipment.

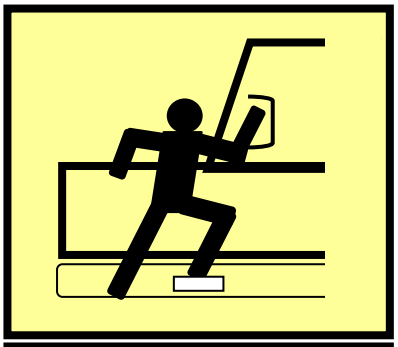
PROTECT YOURSELF!!

Wear all the protective clothing and personal safety devices issued to you or called for by job conditions

You may need:

- Hard Hat
- Safety Shoes
- Safety glasses, goggles or face shield
- Heavy Gloves
- Hearing Protection
- Reflective Clothing
- Wet Weather Gear
- Respirator or Filter Mask
- Wear correct protective gear for the conditions encountered.

The following precautions must be strictly observed to protect the operator. They may also apply to others near the work area as well.



The provided hand rails and steps must be used when mounting and dismounting the Carrier. Do not get on or off using any other method.

Keep all surfaces clean and free of moisture, ice, debris and loose objects. These can create a “Slip Hazard”

Always wear safety belt when operating the FTX-440.

Use the grab handles for support if vehicle turns over.

When stopping the FTX-440, the mulcher must be positioned with rotor at stand still. Always remove the key when leaving the vehicle.

CAUTION! TAKE THE FOLLOWING PRECAUTIONS:

- Always keep doors and windows of FTX-440 closed.
- Use ANSI S3.19-1975 approved hearing protectors with a noise reduction rating (NRR) of 25dB (A)
- Ear muffs
- Ear plugs (disposable or reusable)

Take the following precautions:

- Do not smoke while re-fueling.
- Do not add fuel, fluids or make adjustments while engine is running.
- Ground the fuel funnel or nozzle against the filler neck to prevent sparks.
- Always replace the fuel tank cap.
- Clean fuel spills immediately. Discard soiled material following disposal regulations.

Other Cautions:

- Avoid running engine in confined spaces. Exhaust fumes are dangerous.
- Do not remove radiator cap while hot! Pressure will release hot liquid and cause harm.
- Disconnect battery before performing service to vehicle.
- Use only approved fluids for maintenance.
- Discard used fluids following all disposal regulations.
- No transporting of passengers.
- Do not operate while under the influence of drugs or alcohol. On prescribed medicines follow the instruction listed on the medication.
- Never operate vehicle with the door open.
- When working on steep slopes, always drive directly straight up or down hill to keep vehicle from tipping over.

1.3 OPERATIONAL SAFETY/THE WORK AREA

For the sake of this manual, the front of the FTX-440 is the side with the Bull Hog 350 attached. The rear of the Bull Hog has deflection chains. When the Bull Hog is mounted on the front of the machine, the front of the mulcher is facing the same forward direction.

WARNING!  **Danger caused by flying debris!** 

Improper operation and failure to follow safety precautions can result in personal injury to persons too close to the machine.

Protection from Flying or Falling Objects

As illustrated in Section 1, BE ALERT of the possibility of projectiles exiting the machine. Falling brush, branches, and trees also present a potential hazard to the operator.

CAUTION: DO NOT CROSS WATER DEEPER THAN 4 INCHES OF WATER !!

Avoid Power Lines 

Serious injury or death can result from contact with electric lines. Never move any part of the equipment or the tree it's carrying, closer than 10' plus twice the line insulator length to an electric line. Use a signal person to guide operator. Use shrouds or insulators as necessary.

The Hazard Zone

The following diagram illustrates the Hazard Zone. All personnel should be kept clear of this zone while the Bull Hog is operating.

The shaded area in the Hazard Zone must be considered **OFF LIMITS TO ALL INDIVIDUALS!** The operator should follow the following PRECAUTIONS before and during operation of the Bull Hog.

WARNING!  **Danger caused by flying debris!** 

- **IT IS THE OPERATORS RESPONSIBILITY TO ENSURE THAT NO ONE STANDS IN THE HAZARD AREA!**
- **WARN all persons in the area of the HAZARD ZONE to stay clear of the Zone**
- **STAY ALERT for outsiders entering the work area who may not be aware of the HAZARD ZONE.**
- **Land clearing operations generally involve other machinery and people on the site. MAINTAIN an AWARENESS of all working traffic within 50 yards of the Bull Hog operation.**

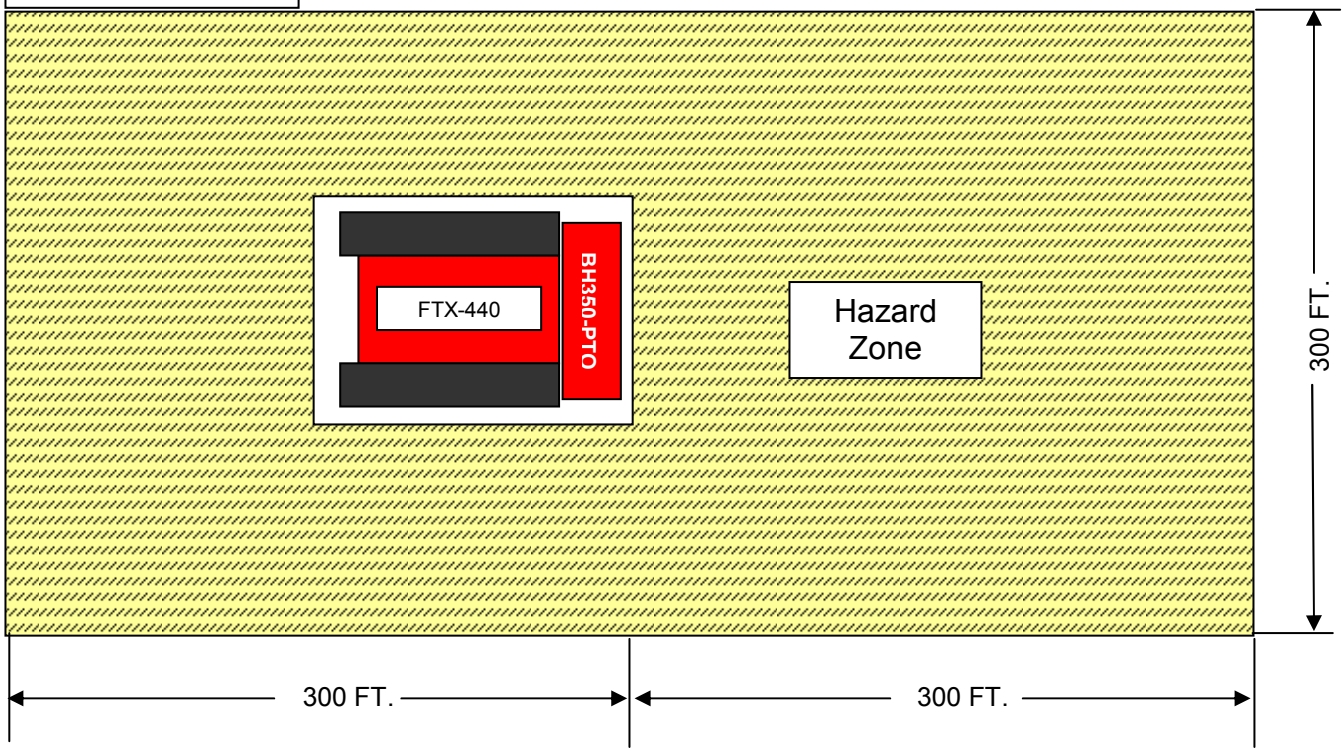
NOTE: Improper operation and failure to follow safety precautions can result in personal injury to persons in the hazard area described below.

The Hazard Zone:

The hazard zone dimensions are described in Figure 1.1

All personnel should be clear of the hazard zone while the FTX-440 is in operation.

Figure 1.1



1.5 Dangerous Locations

DANGER EXISTS most prominently behind and in front of the Bull Hog.

(Refer to the HAZARD ZONE above)

REAR:

Chunks of wood and rock can project from the rear of the Bull Hog on non-excavator units. This condition is dangerous. This will occur when the Bull Hog is raised high enough to allow material to escape.

FOLLOW THESE PRECAUTIONS:

- NEVER allow anyone to the rear of the Bull Hog while it is in operation.
- Inspect the Carrier and Bull Hog daily for damaged or missing deflection chains and flaps

Be especially CAREFUL when:

- The tool is being raised up and out of the material that it has been working.
- The tool is lowered into new material.

FRONT:

The area in front of the Bull Hog may experience projectiles in less volume when compared to the rear. Do not stand within the recommended safety zone.

WARNING!  **Danger caused by flying debris!** 

FOLLOW THESE PRECAUTIONS!

- NEVER allow anyone in front of the Bull Hog while it is under operation.
- CLOSE the hydraulic trap door (if equipped) while pull-working to better contain all pieces. This also increases the fineness of the shredded product.
- *(See Bull Hog Operation – Pull-working in BH350 Section)*.
- Again, be most CAUTIOUS when lowering or raising the machine.

Remember!! Always observe the hazard zone as shown in the previous diagram Figure 1.1

Policing the Work Area

Before starting, a visual survey of the area to be worked is helpful in identifying any undesirable items that may be present. Remove them as much as is practical before proceeding.

Avoid Metal and Wire!

Metal tends to break the hammers' carbide tips. Wire seeks to wrap itself around the rotor shaft, especially near the bearings. The wire can tighten and squeeze past the grease seals causing BEARING DAMAGE IF NOT REMOVED.

NOTE: Wire is sometimes attached to large solid objects (such as fence posts) which can become projectiles. The wire has the capability to sever limbs or even cause death if an individual is in the Hazard zone! Make sure that HAZARD ZONE is CLEAR and area has been cleared of all such hazards.

Use Caution with Stringy Vegetation!

Shredding things like Palmetto, Bird of Paradise, and yard waste tied with plastic causes them to gravitate towards the bearings. The Bull Hog readily handles this material but the operator should exercise additional caution while working it.

Avoid Plastics!

.. Hoses, bags, tarps and ropes must be removed as soon as they are seen.

.. Mattresses, rugs, clothes, and cloth will plug the machine immediately.

.. Any time is a good time to inspect the rotor for clinging strands.

Safety during Maintenance

ATTENTION!! After full load operation, idle engine for about 1 minute before stopping.

Hydraulic leaks are not always visible to the eye. Wear protective gloves and use eye protection. Use a piece of cardboard or wood to locate leak. Do not handle with unprotected hands!

Fluid under high pressure can penetrate or lacerate skin and cause severe injuries that can lead to death! If oil penetrates skin seek hospital treatment!

- Hydraulic pressure will remain after unit power has been shut off. Lower the Bull hog to the rest position and connect locking support rods to the Bull Hog 350 PTO. (This keeps the push bar from falling in case of hydraulic pressure loss.) Then release remaining pressure from lines before beginning work.

Fluids will be hot after the machine has been running. Use care when draining hot fluids or removing caps under pressure to avoid burns.

Liquids must be disposed of according to all regulations. It is the owner /operators responsibility to adhere to the regulations applicable to their region.

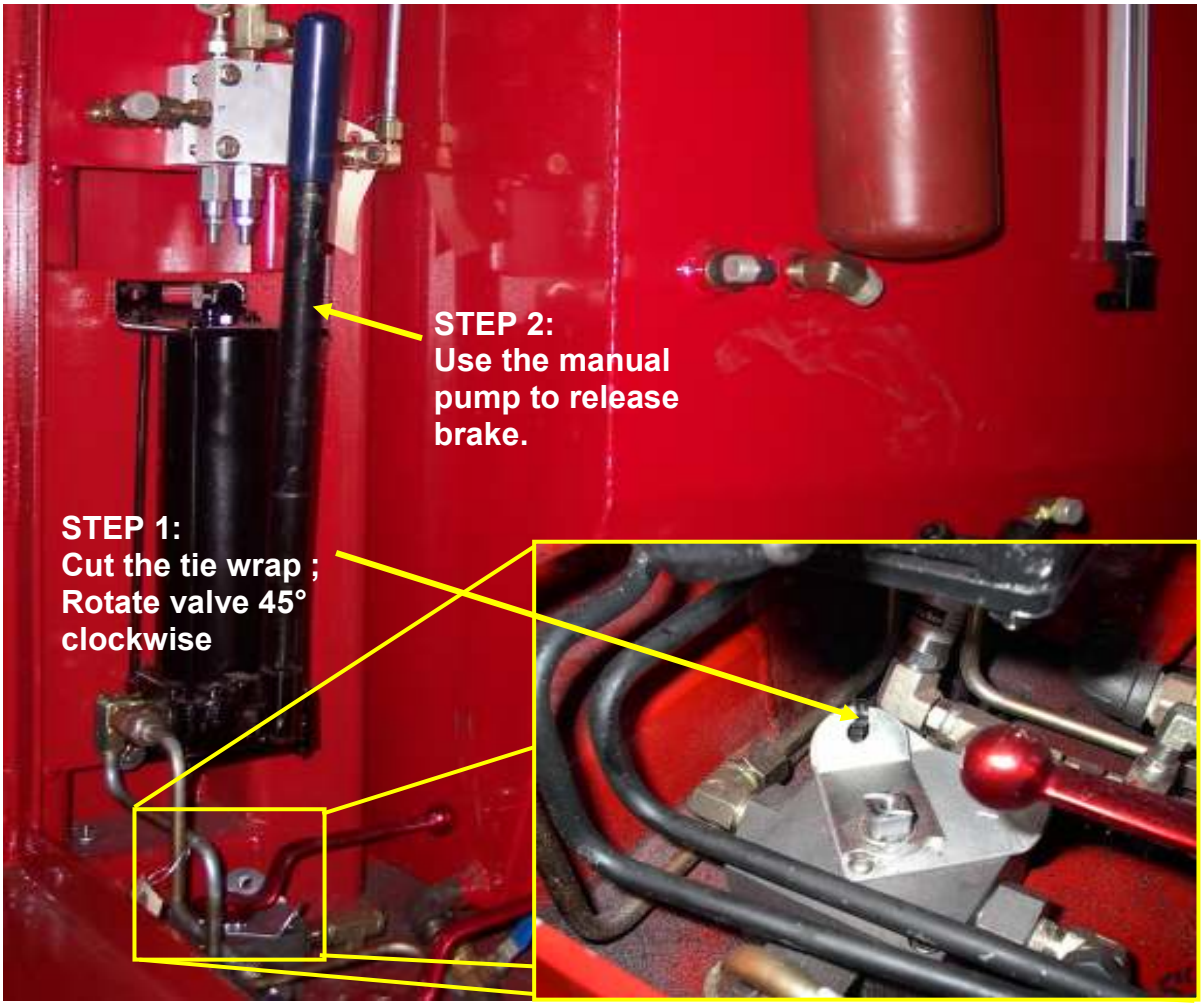
- If machine requires service or repair in the field it must be positioned on flat even ground if possible. If it needs to be moved, follow the Towing Instructions below.

Towing Procedure

Tools required:

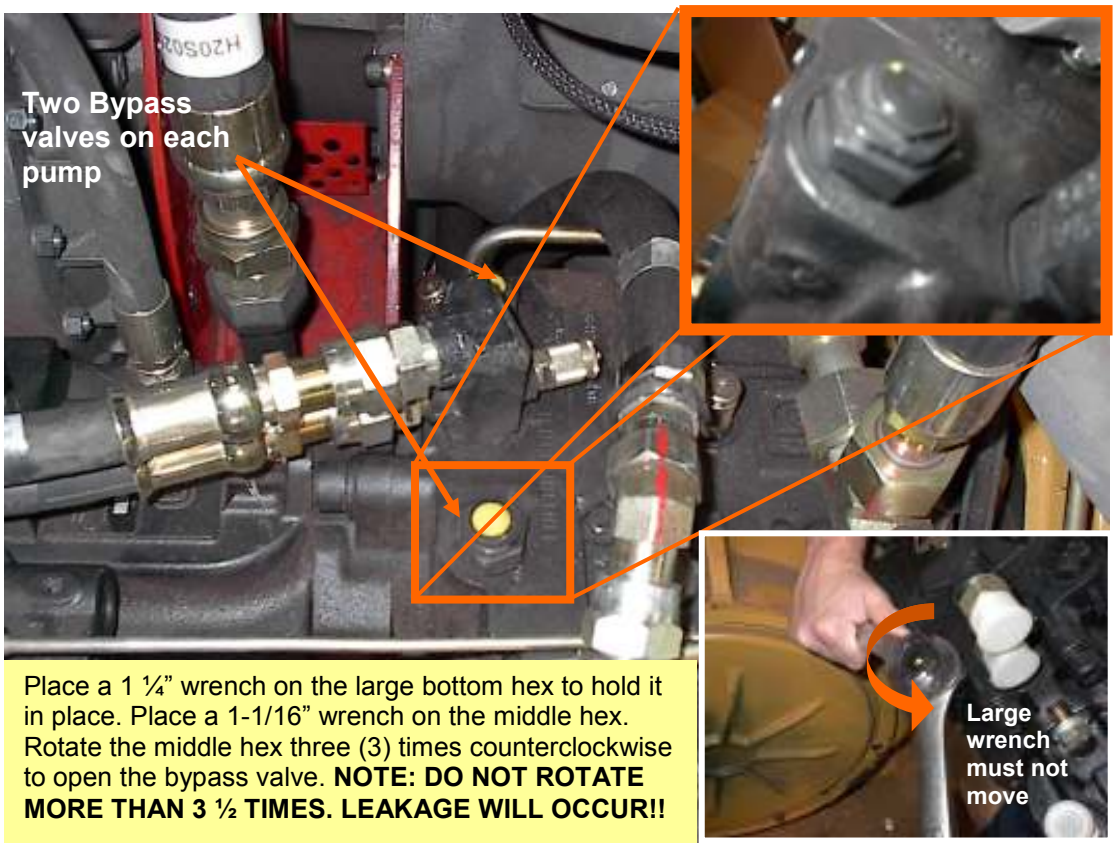
- Utility knife or equivalent to cut tie wrap
- 1-1/4” wrench
- 1-1/16” wrench

The FTX 440 can be towed only a short distance at a very slow speed. The following procedure is designed to move the carrier a short distance to an alternate transportation source or to flat level ground where repairs can be made. If the FTX-440 should become disabled in a situation that requires the tractor be towed, the operator should follow the following instructions:



After completing the steps above, the series 90 pumps on the engine will need to be by-passed mechanically. Do this by rotating the bypass hex on both valves (3) three turns counterclockwise (CCW).This allows fluid to circulate without rotating the pump and prime mover. See figure below.

CAUTION: POSSIBLE PUMP AND / OR ENGINE DAMAGE
Bypass valves are intended for moving the carrier a very short distance at a very slow speed. They are NOT intended as tow valves.



Place a 1 ¼" wrench on the large bottom hex to hold it in place. Place a 1-1/16" wrench on the middle hex. Rotate the middle hex three (3) times counterclockwise to open the bypass valve. **NOTE: DO NOT ROTATE MORE THAN 3 ½ TIMES. LEAKAGE WILL OCCUR!!**

To close the bypass valve after moving to repair area, rotate the middle hex CLOCKWISE until seated. Torque the middle hex to 30 foot pounds.

Transport on Public Roads

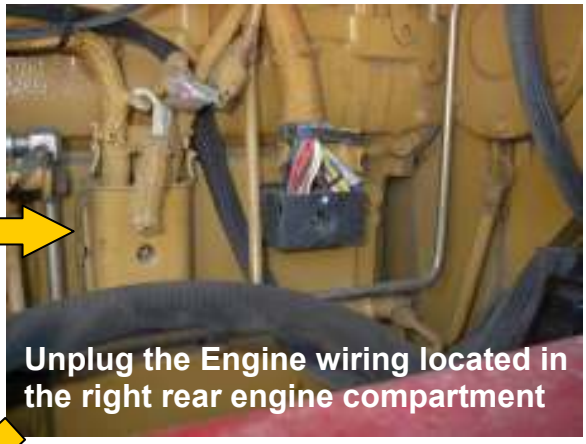
To transport the FTX-440 on public roads it:

- must be transported on a low loader.
- must be secured on the loading floor of the truck trailer.
- All traffic laws in areas transported through must be adhered to.
- Transporting vehicle must be equipped with all safety equipment required by law. (Brake lights, reflectors etc)

If Welding on Unit is necessary:

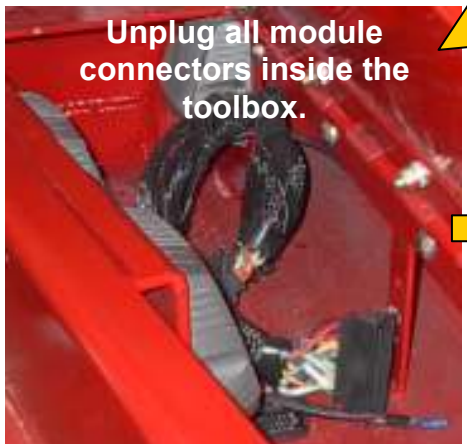
If any welding needs to be performed on either the FTX-440 or the BullHog BH350 PTO the following precautions MUST BE TAKEN to avoid serious electronic damage.

Disconnect the battery located in the right rear engine compartment



Unplug the Engine wiring located in the right rear engine compartment

Open toolbox located on the right outside next to the cab.



Unplug all module connectors inside the toolbox.

Open screen housing and unplug video screen.

1.7- P.T.O. Driveline Safety

The FTX-440 utilizes a P.T.O Driveline to transfer power to the Bull Hog 350 mulching unit. The cardan shafts are designed for ease of assembly and maintenance, but most importantly for safe operation. As with other moving parts:

STAY CLEAR OF THE CARDAN SHAFT AREA WHILE THE CARRIER IS RUNNING!

CAUTION! **SHUT OFF TRACTOR AND REMOVE KEY BEFORE PERFORMING MAINTENANCE ON THE FTX-440. FOLLOW LOCKOUT TAGOUT PROCEDURE (29 CFR 1910.147)**

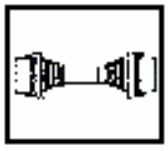
CAUTION!

DO NOT WEAR LOOSE CLOTHING OR JEWELRY THAT COULD GET CAUGHT IN DRIVE!! CONTACT WITH ROTATING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH!!

CAUTION!

KEEP OPERATORS AND BYSTANDERS AWAY FROM MOVING PARTS!
CONTACT WITH ROTATING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH!!

CAUTION!



ENSURE THAT ALL GUARDS ARE PROPERLY INSTALLED BEFORE OPERATING.

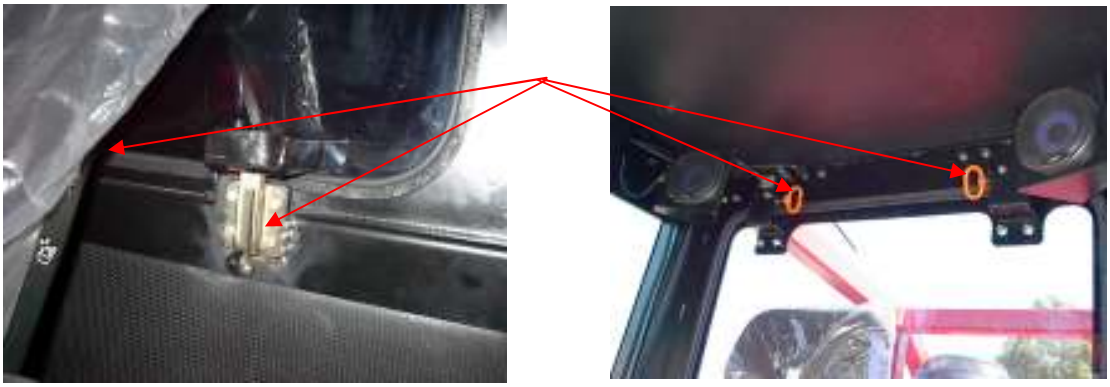
CAUTION!

DO NOT STAND ON, STEP OVER OR GO UNDER DRIVELINE!
CONTACT WITH ROTATING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH!!

Emergency Exit Procedure

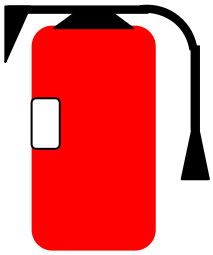
If the FTX-440 should become disabled in a situation that does not allow exit through the entry door, the operator should do the following:

1. Remove the hinge pins located at the bottom of the rear window.
2. Pull the two orange handles at the top of the rear window to release the rear window.
3. Exit carefully moving to the nearest handholds and footholds.



Fire Prevention

Please adhere to the following cautions to reduce the possibility of fires:



- **Keep the machine clean. Remove dust and debris regularly.**
- **Clean radiator grills regularly.**
- **Check daily for fire hazards and make repairs immediately.**
- **Check condition of hydraulic lines, fuel lines, electrical cables and connectors regularly and repair if necessary.**
- **Keep machine free of excess grease or oil.**
- **Use only non-flammable liquids for cleaning the machine.**
- **Cleaning rags to be stored in a clean dry place.**
- **Keep a fire extinguisher at hand during maintenance or repairs that may induce sparks. (Located inside door of cab)**

NOTE: In Case of Fire….

- **Stop the Engine!**
- **If possible, extinguish with fire extinguisher!**
- **Make sure fire does not spread!**
- **Call for help if needed.**

SECTION 2 - OPERATION INSTRUCTIONS FOR THE FTX-440

- IMPORTANT! READ THESE INSTRUCTIONS BEFORE OPERATING!!
- THE INITIAL HOURS OF PROPER OPERATION CAN CONTRIBUTE GREATLY TO THE SUCCESSFUL OPERATION AND LONGEVITY OF YOUR MACHINE.

PRE-OPERATION INSPECTION OF THE FTX-440

- Perform a walk around visual inspection of the FTX-440.
- Check condition of tracks and exterior.
- Check oil level of the C13 engine.
- Check all fluid levels to ensure safe operation of unit.
- Climb in to the cab using the footholds and handrails to ensure good balance.

2.1- SEAT ADJUSTMENTS AND INSTRUCTIONS

NOTE: FOR SAFETY PURPOSES, THE FTX-440 CAN ONLY BE OPERATED WHILE DRIVER IS IN THE SEAT. WHEN THE SEAT IS UNOCCUPIED, THE BRAKE IS AUTOMATICALLY SET AND THE MACHINE WILL NOT MOVE.

Seat Contents:

*** if fitted **depending on model**

General Instructions

The operating instructions should be read in full before use.

- The operating instructions should be kept in the vehicle and always be at hand.
- The driver seat may only be fitted, serviced and repaired by specialist personnel, in accordance with national regulations and the vehicle manufacturer's fitting instructions.
  In the event of incorrect assembly and/or repair, all warranty and liability claims shall be null and void.
  The national fitting regulations can be obtained from GRAMMER or from agencies of the company (see dealer directory), or from the vehicle manufacturer.
- A correctly functioning and individually adjusted driver seat is essential to your health. Take adequate care of your seat and have it serviced regularly to ensure that it functions correctly.

⚠ The functional checks should be carried out at least as regularly as vehicle services (see maintenance plan for vehicle).

⚠ Safety instructions

- When making connections to the vehicle electrical system, pay attention to the information on the rating plate (on the rear spring; push seat right forward to read). The seat connection must be separately fused:

  -at 24V 10A (15A at seat heater)

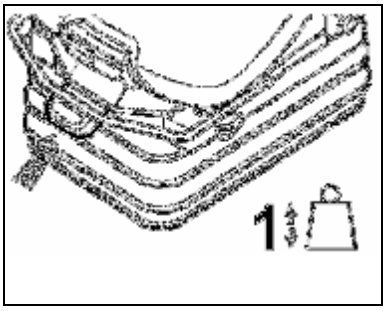
- To prevent damage to the driver's back, the seat must be adjusted for the driver's weight **before use** and **before every change of driver**.
- To prevent injury, **no objects should be placed within the moving area** of the driver seat.
- To eliminate any risk of accident, the settings must be checked to ensure they are correctly engaged before the vehicle is driven.
- Adjustments must **not** be made **while driving**.
- **When the backrest upholstery has been removed**, the backrest frame must be supported, for example held in place, before the backrest adjuster is operated. If you fail to do so, there is a **danger that the backrest frame may jerk forward and cause injury**.
- **If you make any changes to the standard seat** (for example fitting parts which are not original GRAMMER parts) it may no longer meet the safety standards to which it is tested.**Functions may be impaired**, threatening your **safety**. For this reason, **any change in design of the seat** must be approved by GRAMMER.
- Seatbelts can be retrofitted to the driver seat. Seatbelts **may only be fitted on the approval of the vehicle manufacturer**, as they increase the load in the seat mounting area. Seatbelts must be fitted in accordance with specific national regulations and guidelines, and must be approved by GRAMMER.

- Seatbelts must be fastened **before driving**.
  The seatbelts must be replaced after an accident.
  Where seatbelts are fitted to the driver seat, the **seat** and **seat mounting** must be checked **additionally** by specialist personnel after an accident has occurred.
- Fasteners must be **checked regularly for tightness**. If the seat wobbles there may be loose bolts or other faults.
  If the seat does not function correctly (for example the seat suspension), **contact a specialist workshop immediately** to arrange for repairs to be carried out.
  If you fail to do so, your health may be affected and the **risk of accident increased**.
- Seats with a built-in switch (to deactivate component units when leaving the seat or the vehicle) may only be installed **with the prior approval of the vehicle manufacturer**, and may only be operated together with additional safety devices in the vehicle.
- Before driving the vehicle, the **function** of any switches fitted in the seat must be checked. If malfunctions are detected the vehicle must not be driven.
  – INCREASED RISK OF ACCIDENT –
- **Loads must not be placed on seats with a built-in switch**, except for the driver's weight during normal use, as the vehicle may otherwise start to move by itself.
  - INCREASED RISK OF ACCIDENT -
- OBAMMER can provide no guarantee for damage resulting from incorrect assembly, use or repair of the driver seats.

Weight adjustment

The seat should be adjusted for the driver's weight by briefly pulling the actuator lever of the automatic weight and height adjuster (arrow) with the vehicle at a standstill and the driver sitting on the seat.
The driver must sit absolutely still during adjustment. To prevent damage to the health, the setting for the driver's weight must be checked and adjusted as necessary before the vehicle is driven.

☞ To prevent damage to the health, the setting for the driver's weight must be checked and adjusted as necessary before the vehicle is driven.

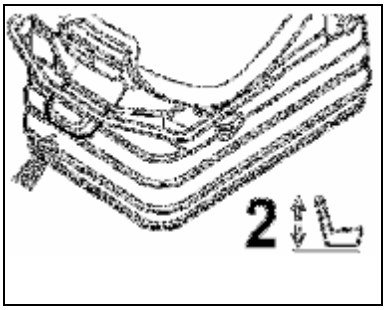


Height adjustment

The seat height can be set pneumatically and is infinitely adjustable.

The seat height can be altered by pulling or pressing the actuator lever fully out or in (arrow). If the adjustment reaches the top or bottom end stop, the height is adjusted automatically in order to guarantee a minimum spring travel.

☞ In order to avoid damage, do not operate compressor for more than 1 minute



Seat depth adjustment *

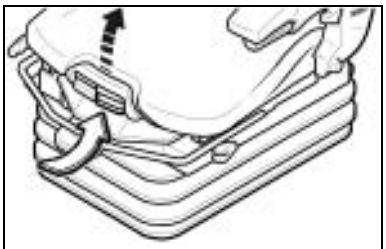
The depth of the seat pan can be individually adjusted.

To adjust the depth of the seat cushion, lift the R/H handle (see arrow). By moving the seat cushion backwards or forwards the desired seating position can be reached

Seat pan angle adjustment *

The angle of the seat pan can be individually adjusted.

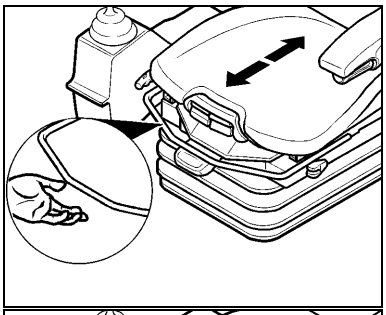
To adjust the angle of the seat pan, lift the L/H handle (see arrow). By exerting pressure on or off the seat pan it can be moved to the desired angle position.

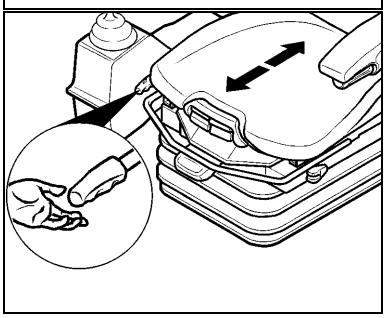


Fore/aft adjustment without Control carrier equipment **

The fore/aft adjustment is released by lifting the locking lever.

☞ The locking lever must latch into the desired position. It should not be possible to move the driver seat into another position when it is locked.

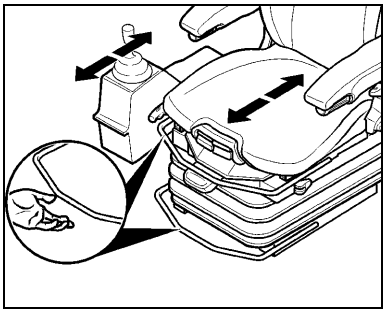




**Fore/aft adjustment with control carrier equipment * **

The fore/aft adjustment is released by lifting the locking lever.

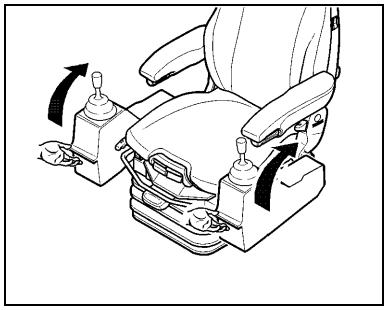
☞ The locking lever must latch into the desired position. It should not be possible to move the driver seat into another position when it is locked



* if fitted **depending on model

Control carrier *

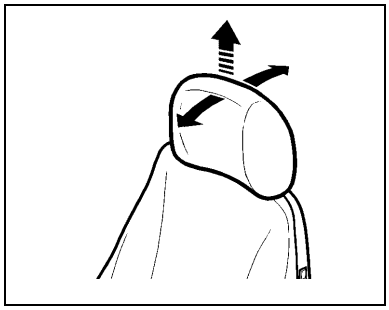
To improve getting in and out of the seat the left or right box can be tilt up.



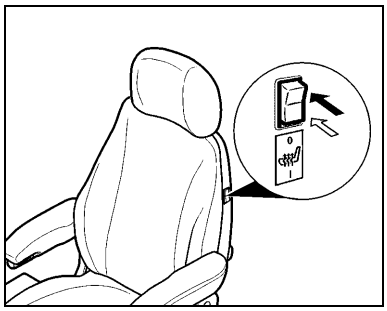
Headrest *(optional extra)

The headrest can be individually adjusted for height by pulling it upward over the various increments up the end stop.

By pushing forward or rearward the angle of the headrest can be adjusted individually.
To remove the headrest, pull it over the end stop.

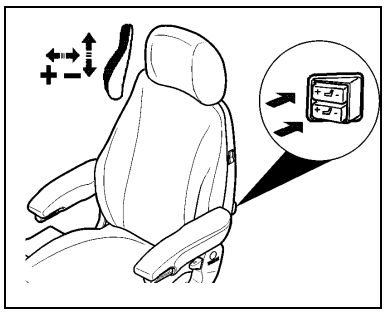


Seat heater *(optional extra)
The seat heater is turned on by pressing the switch (arrow).



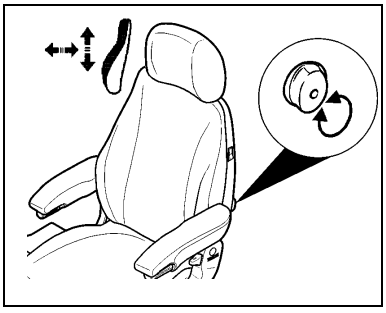
Lumbar support **

The curve of the backrest cushion can be individually adjusted by pressing the upper and lower switches.
This increases both the seating comfort and the performance of the driver.



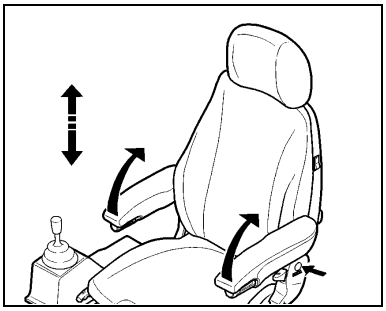
Lumbar support **

By turning the adjustment knob to the left or right, both the height and curvature of the backrest cushion can be individually adjusted.
This increases both the seating comfort and the performance of the driver.



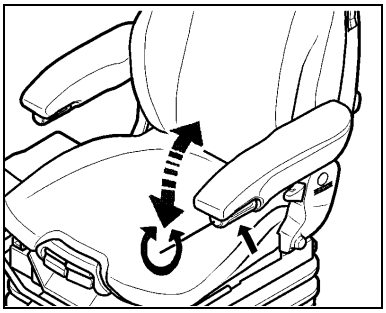
Armrests *

The armrests can be folded up if required and the height individually adjusted.
To adjust the armrests for height, separate the round cap (see arrow) from the cover, loosen the hexagon nut (size 13mm) and adjust the armrest to the desired position and tighten the nut again.



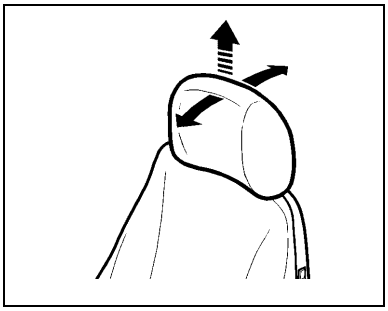
Armrest adjustment *

The inclination of the armrests can be modified by turning the adjustment knob (arrow).



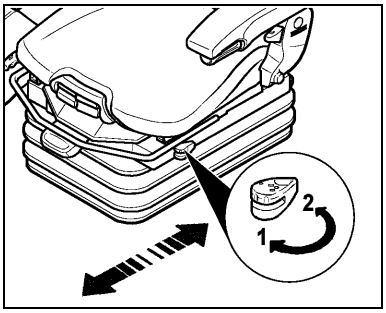
Backrest adjustment

The backrest is adjusted using the locking lever (arrow). The locking lever must latch into the desired position. It should not be possible to move the backrest into another position when it is locked.



Fore/aft isolator

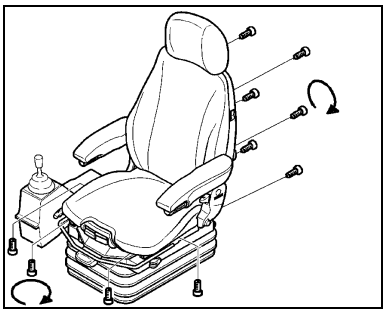
Under certain driving conditions (for example with a trailer attached), it is useful to activate the fore/aft isolator. This means that shock impacts in the driving direction can be better absorbed by the driver seat.
Position 1 = fore/aft isolator on
Position 2 = fore/aft isolator off



SEAT MAINTENANCE

Dirt can impair the function of the seat, so make sure you keep your seat clean!

Upholstery can be quickly and simply removed from the seat frame for easy cleaning, or replacement. To remove the upholstery, turn the clips (arrow) and remove the upholstery.

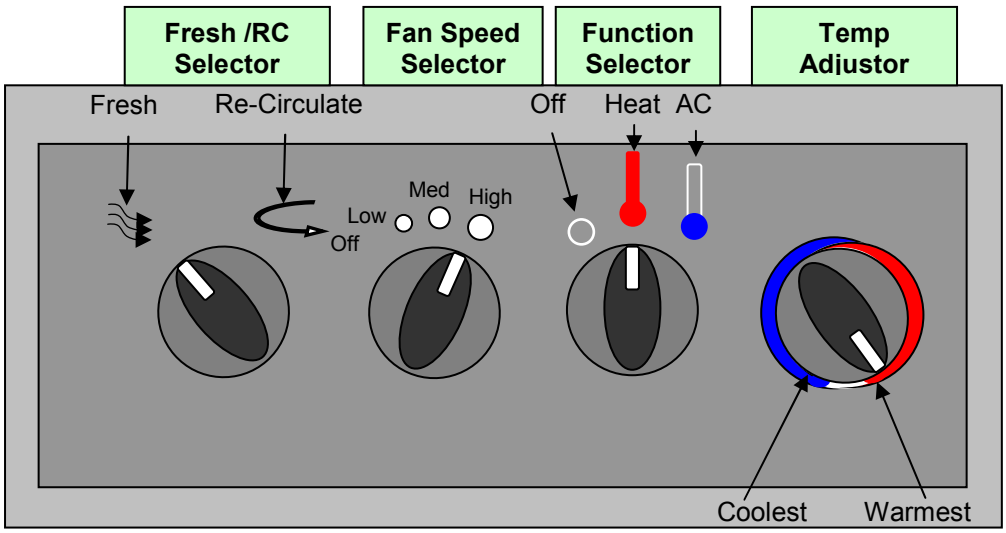


Caution: take care with the backrest frame - it may jerk forward and cause injury!

During cleaning the upholstery should not be soaked through.
Use a standard commercially available **upholstery or plastics cleaning agent**. **Test first for compatibility** on a small, concealed area.

2.2- HVAC Controls

The climate control is designed for the HVAC system installed in the FTX-440 Carrier. The following figures show the controls for cabin temperature.



Heating and AC Operation

Windshield Defrosting

For best results:

- Rotate temperature adjustor completely clockwise to red.
- Rotate the Fresh Air / Re-circulate selector to fresh air.
- Set fan to high setting
- Open all front vents.

To Heat:

- Set function selector to
- Rotate the temperature adjustor clockwise to setting desired.
- Set Fan speed to setting desired.
- Adjust temperature as needed for comfort.

Air Conditioning:

NOTE: Engine must be running to operate AC.

- Set function selector to
- Rotate the temperature adjustor counter-clockwise to cool.
- Set Fan speed to setting desired.

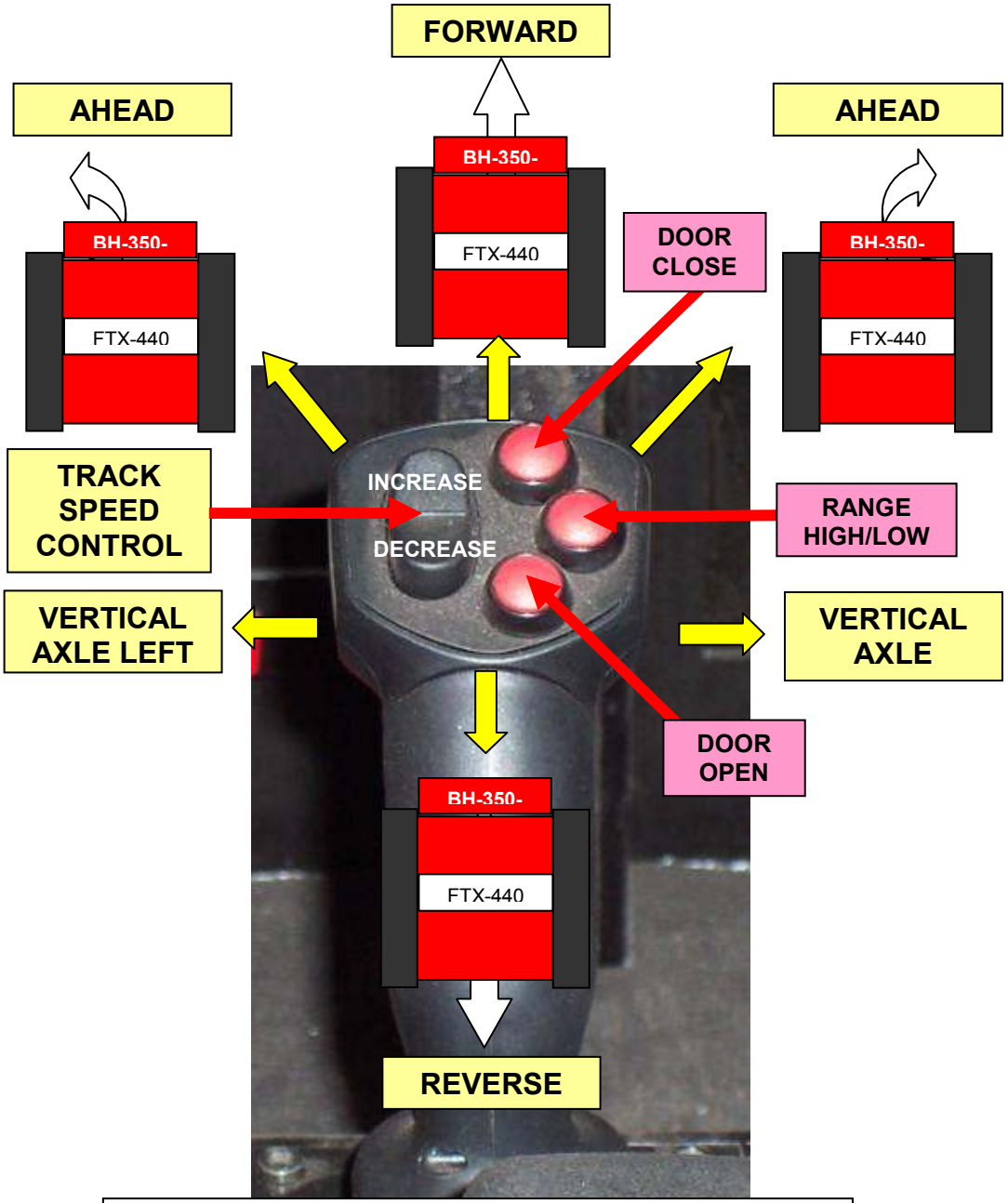
Adjust temperature as needed for comfort.

2.3- INITIAL OPERATION:

NOTE: On startup allow FTX-440 to idle for at least 1 minute before attempting any maneuvering or Bull Hog testing

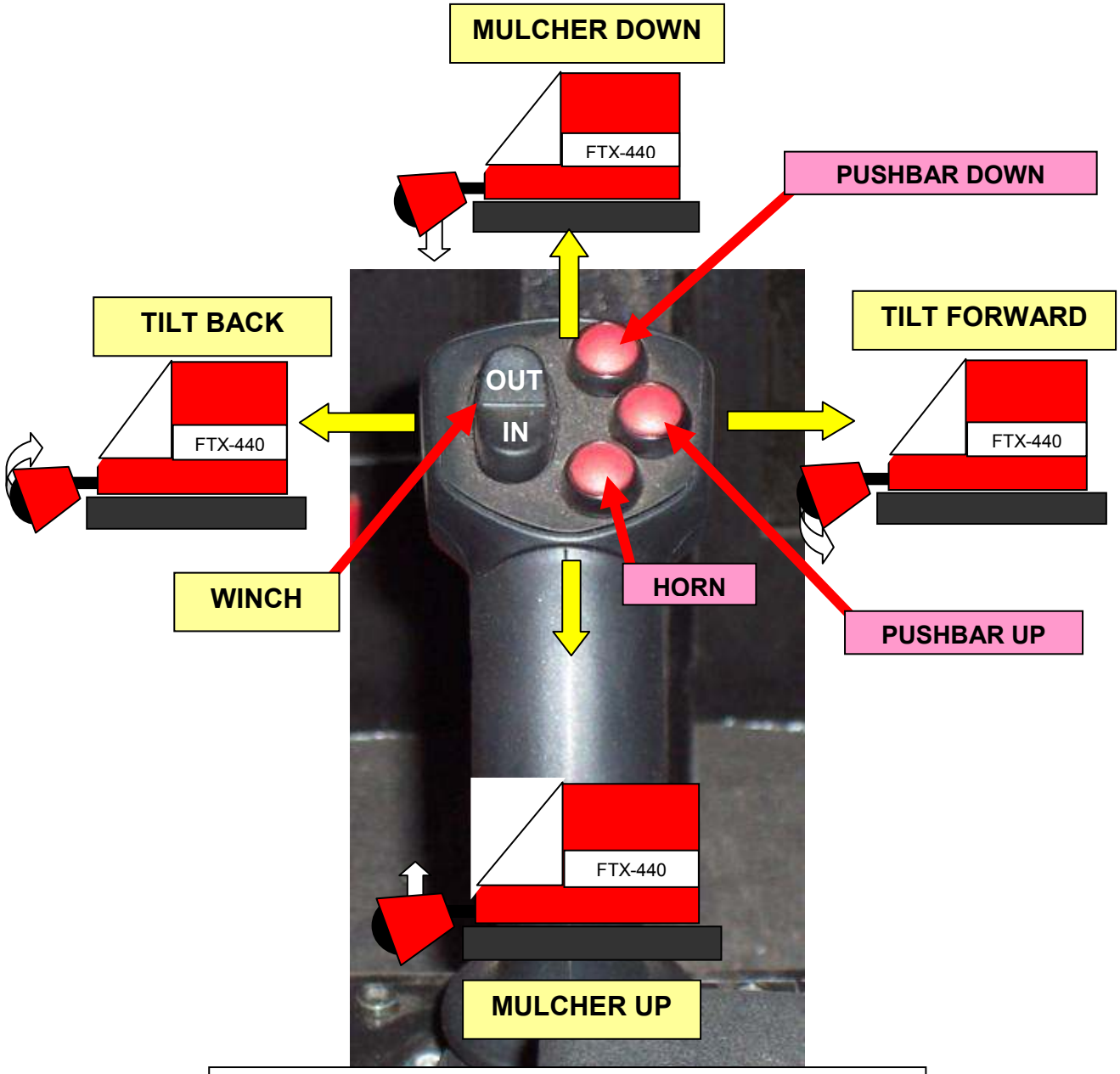
- Before moving the FTX-440, test all functions including lift, tilt and rear door.
- Refer to Right Joystick Diagram for Bull-Hog controls.
- Immediately report any suspected problems to Fecon Inc. at 1-800-528-3113

CARRIER CONTROLS- Left Joystick



LEFT JOYSTICK- DRIVING CRAWLER

CARRIER CONTROLS- Right Joystick



RIGHT JOYSTICK- LIFT AND MULCHER

NOTE: For IQAN Control refer to IQAN operation Section of manual

SECTION 3- PREVENTIVE MAINTENANCE FOR FTX-440

Proper preventive maintenance will help ensure that the FTX-440 will perform to its full capabilities and eliminate unnecessary breakdowns due to neglect. The manufacturers warranty is conditional upon following all maintenance recommendations.

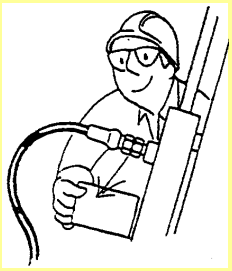
3.1 Safety First!

- **Perform maintenance only after the FTX-440 carrier has been shut-off and all moving parts have come to a stop.**
- **Ensure that the ignition key is removed from the FTX-440.**
- **Lock-out the carrier to prevent it from being started following Lockout / Tagout Procedure (29 CFR 1910.147).**
- **Dismantle the machine only on flat and firm ground.**
- **Wear protective equipment at all times.**

WARNING! Never work on machinery with the engine running unless instructed so by the operating or service manual.

- **When making engine adjustments that require the engine to be running you must work as a two man team with clear method of communication. One in the drivers seat as the other makes adjustments to the engine.**
- **Ensure that there is proper ventilation in your work area.**
- **Always wipe up all excess grease and oil when work is complete.**
- **Replace all protective guards when work is complete.**

WARNING! Hydraulic systems are under extremely high pressure! Use thick cardboard and wear thick gloves to inspect for leaks in the system. The leak could be hard to see and possibly could cut through skin due to high pressure! The cardboard will show leaks quickly and safely.



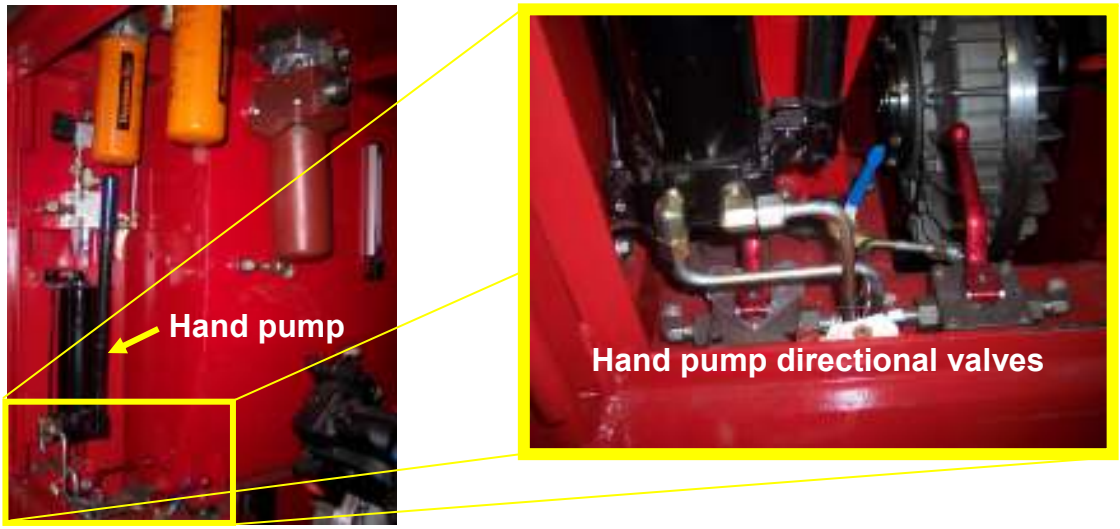
DO NOT WEAR LOOSE CLOTHING OR JEWELRY THAT COULD GET CAUGHT IN ROTATING COMPONENTS!! CONTACT WITH ROTATING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH!!

NOTE: Refer to the Bull Hog 350 PTO manual for Bull Hog parts and maintenance.

3.2 Maintenance Accessibility and Parts

To move the cab forward use the hand pump shown in figure 3. This will allow access to the hydraulic gearbox located beneath the cab.

See Parts Section for part numbers and locations.



3.3 - MAINTENANCE SCHEDULE

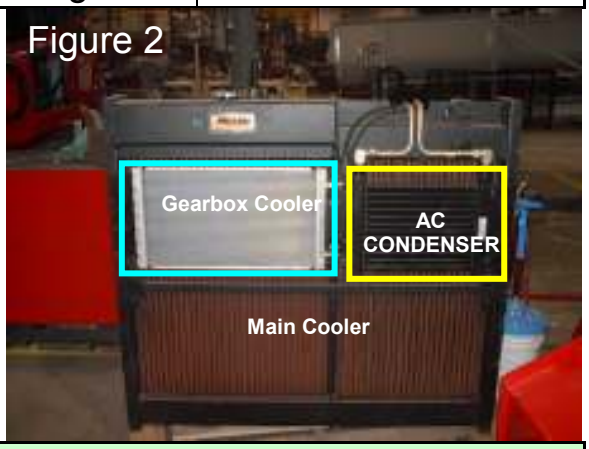
NOTE: A LIST OF REPLACEMENT FILTERS FOR THE FTX-440 IS PROVIDED ON THE BACK OF THE COVER ON THIS MANUAL. THE FOLLOWING LIST CONTAINS RECOMMENDED FLUID INFORMATION FOR THE FTX-440.

Fluid Type	Fluid Description	Fill Qty.	Fill Units
Engine Oil	15W-40	10.5	gal
Hydraulic Oil	AW46	65	gal
Diesel Fuel	No. 1-D or No. 2-D	150	gal
Fluid Coupling	ISO 32	5	gal
Final Drives	SHC 629	5-6	qt
Bull Hog Gear Box	75w90 Synthetic	8-10	qt
PTO Gear Box	75w90 Synthetic	5.3	gal

Daily Maintenance Checks		
Air Conditioning		
	Check compressor belt tension and condition	See Figure 1
	Check condenser for blockage and damage	

Figure 1

Figure 2

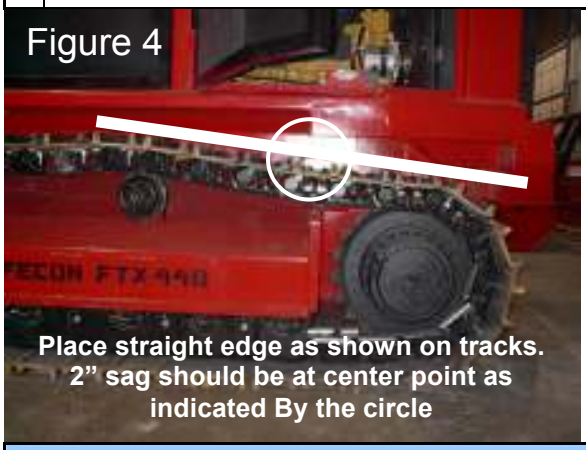


Hydraulics		
	Check hydraulic oil level	See Figure 3
	Check hydraulic system for leaks and damage	
	Check main cooler for blockage and damage	
	Check gearbox cooler for blockage and damage	See Figure 2

Figure 3

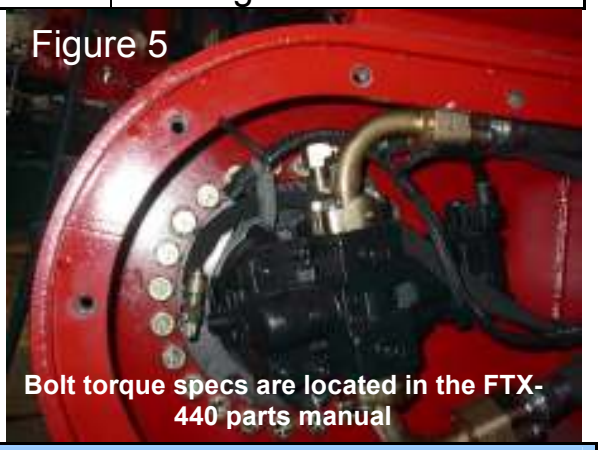
Undercarriage		
	Clean chains and rollers of dirt and debris	
	Check chain tension	See Figure 4
	Check for loose or damaged pads	
	Check for leaks and loose bolts on drives	See Figure 5

Figure 4



Place straight edge as shown on tracks. 2" sag should be at center point as indicated By the circle

Figure 5



Bolt torque specs are located in the FTX-440 parts manual

Lifting Gear		
	Grease lower pivot pins	See Figure 6
	Grease attaching pins	

Figure 6

Engine

Check engine oil level	See Figure 7
Check radiator coolant level	See Figure 8
Check coolant system for leaks or damage	
Check fan belt tension and condition	See Figure 9
Check radiator and charge air cooler for blockage and damage	See Figure 2
Check dust collector for dust	
Check fuel filter for water and dirt	See Figure 10

Figure 7

Figure 8

Figure 9

Figure 10

Weekly Maintenance Checks (50 Hours)

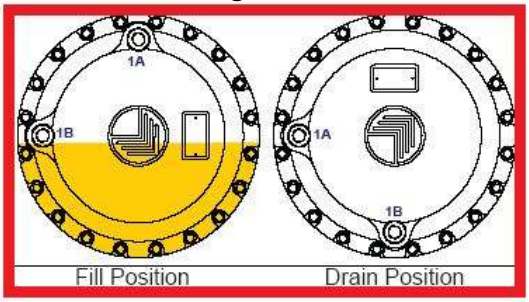
Hydraulics		
	Check hydraulic drive lines and pumps for leaks or damage	
	Change pump charge filters (First 50 hours)	See Figure 11
	Change open loop hydraulic filter (First 50 hours)	
	Change close loop return filter (First 50 hours)	

Figure 11

Undercarriage		
	Check oil level in drive gearboxes	See Figure 12
	Check bolt torque on drive sprockets	See Figure 13

Fecon recommends SHC 629 Synthetic gear oil be used in Final Drive under normal temperature range. In very cold environment use SHC 627.

Figure 12



Place in fill position. Remove pug 1B. Oil should be right at bottom of opening 1B.

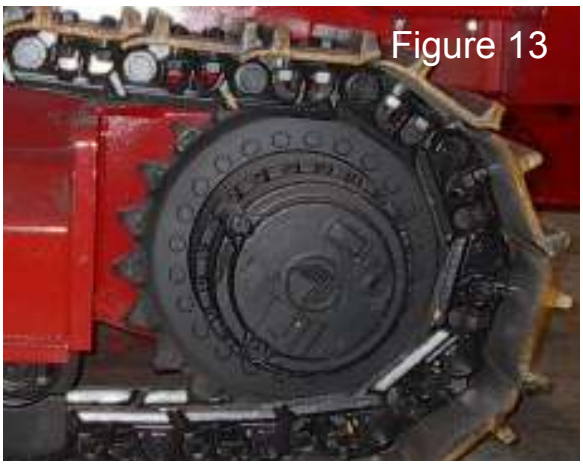
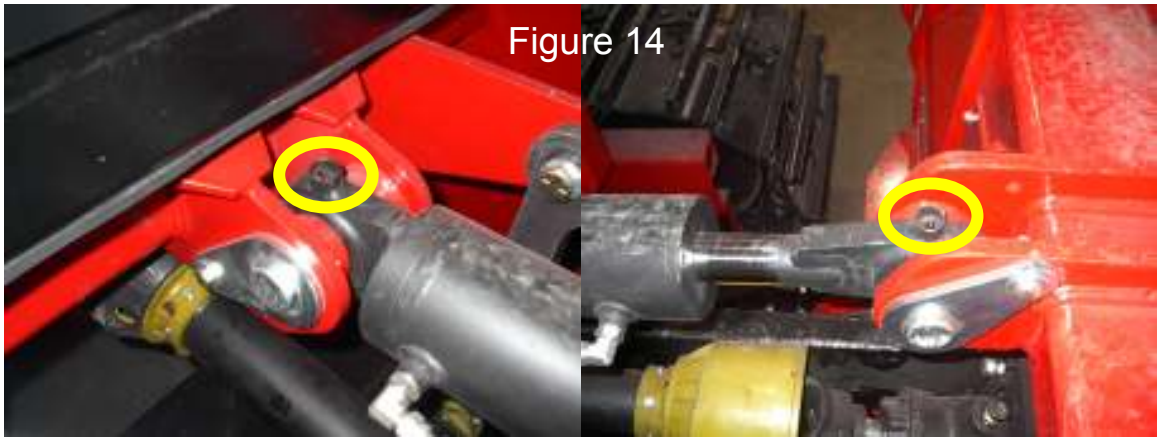
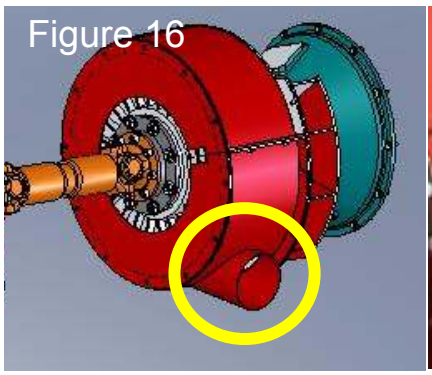


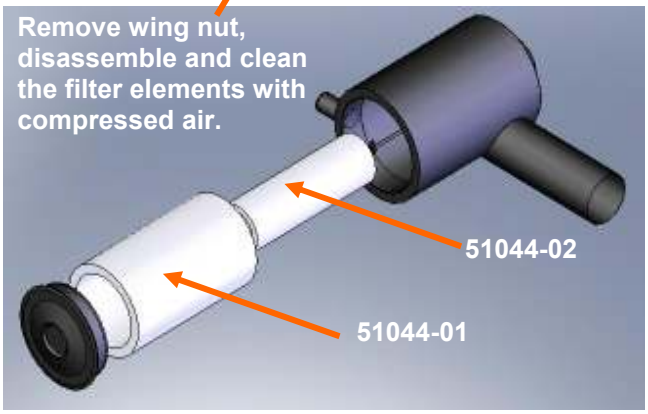
Figure 13

Lifting Gear		
	Grease top link cylinder pins	See Figure 14

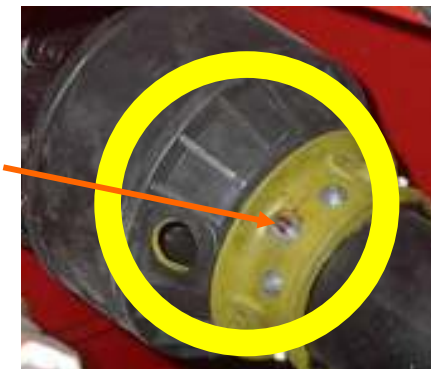


Engine		
	Check clamps on air filter and plumbing	
	Clean engine air filter	See Figure 15
	Check pre-cleaner system for leaks	
	Check fluid coupling oil level	
	Check fluid coupling exhaust vent for blockage or debris	See Figure 16
	Grease PTO drive shafts	See Figure 17
	Check bolt torque on drive shafts and gearboxes (First 50 hours)	





Grease fittings On both ends of PTO shaft.



200 Hour Maintenance Checks

Air Conditioning		
	Start and run A/C for 10 minutes to grease running parts	
	Check A/C system hoses and fittings for leaks or damage	
	Check evaporator for blockage and damage	

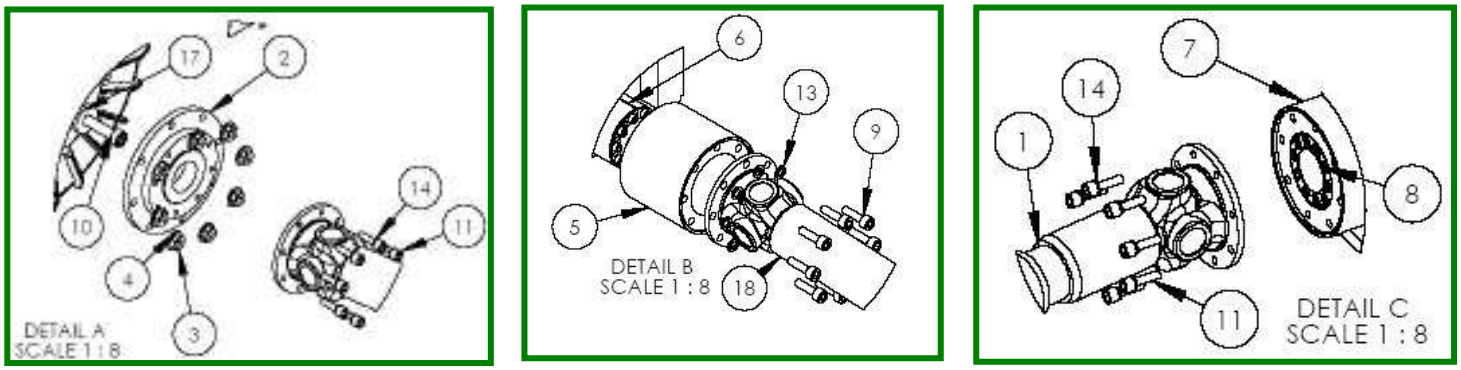
Hydraulics		
	Check drive motors for leaks or damage	See Figure 18

Figure 18

Undercarriage		
	Check drive motor and gearbox mounting bolts	

Engine		
	Check bolt torque on drive shafts and gearboxes	See Figure 19
	Change engine oil	
	Change engine oil filter	
	Change fuel filter	

Figure 19



NOTE: REFER TO THE PARTS SECTION FOR DRIVE SHAFT TORQUE SPECIFICATIONS

500 Hour Maintenance Checks

Hydraulics		
	Perform oil sample test, change as required	
	Change pump charge filters	
	Change open loop hydraulic filter	See Figure 11
	Change close loop return filter	

Undercarriage		
	Change oil on drive gearboxes	See Figure 16

2000 Hour Maintenance Checks

Engine		
	Change oil in fluid coupling	See Figure 17

Annual Hour Maintenance Checks

Engine		
	Change main engine air filter	See Figure 15
	Change safety element at every third maintenance of main filter	

Please refer to the BH350-PTO Manual for Bull Hog Maintenance information.

3.4 - Engine Maintenance

Note: Refer to the Cat C-13 Engine manual CD provided in your FTX-440 Carrier Care Kit.

1. Engine Oil Change

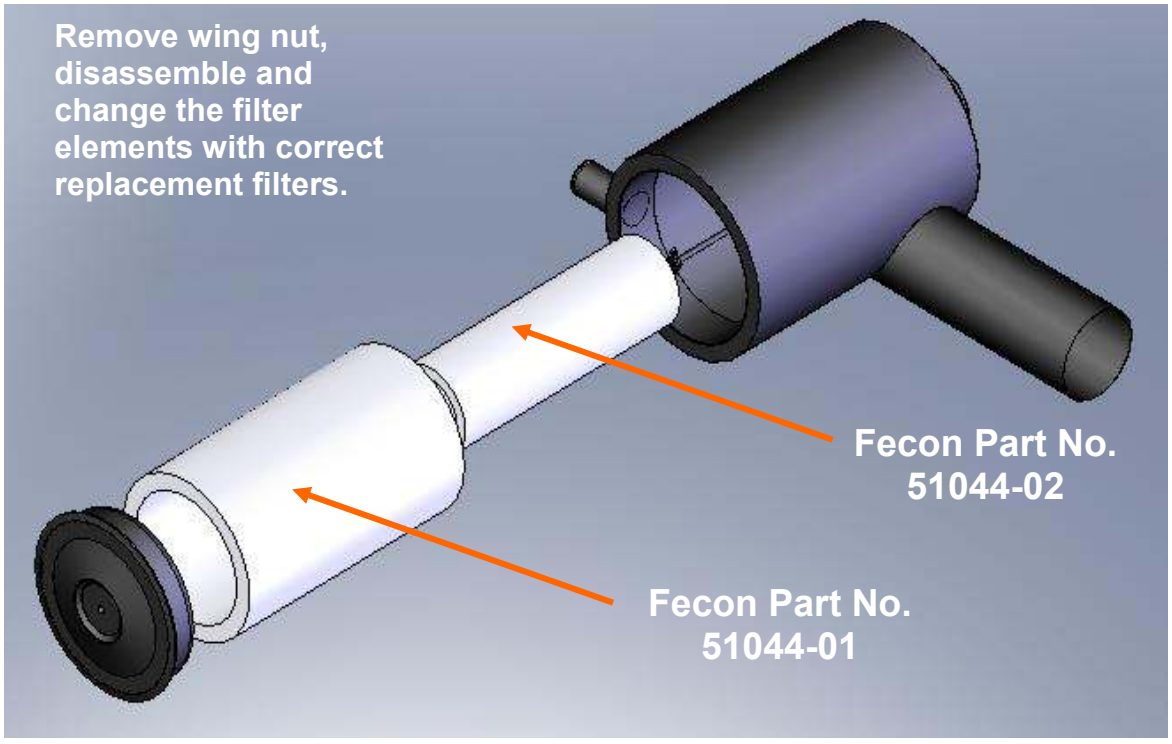
NOTE: Check your engine oil level DAILY per your maintenance schedule

Engine oil and oil filter should be changed every 200 operation hours.

Instructions:

A. Drain Engine Oil
B. Remove drain plug from engine oil pan. Drain into an approved oil catch pan.
C. Remove the engine oil filter and discard following all environmental regulations.
D. Install new oil filter. Remember to lubricate the filter gasket with a thin coat of oil before installation.
E. Re-install the oil pan drain plug. If plug is damaged it should be replaced.
F. Add 10.5 gallons of 15W-40 oil to engine and replace oil cap.
G. Run engine momentarily and establish oil pressure. Stop engine and check oil level.

2. Air Filter Change.



Air Conditioning System

Specifications:

The HVAC unit is designed for use in driver cabins of heavy construction and commercial equipment.

Technical Data:

Heating and AC unit

Heat Capacity:	31600 btu/hr
Cooling Capacity	33070 btu/hr
Refrigerant:	R134A
Rated Voltage:	24V
Current Consumption:	11.2 A max
Operating Voltage:	24V
Airflow max:	430 ft³/h (free blowing)
Fan:	3-speed permanent magnet

Condenser

Heat Capacity:	-,- kW
No. of Fan:	1 x axial
Voltage:	24V
Operating Pressure	bar
Refrigerant:	R134A
Weight	lb
Current Consumption:	-,- A max
Airflow ca:	ft³/h
Fan:	Long life motor

Compressor

Model:	
Drilling:	
Stroke:	
No. Cylinder:	
Revolution max:	
Output:	
Rotating direction:	
Refrigerant:	R134A
Operating Voltage:	24V
Oil:	

Filling quantity for refrigerant R134A = - - oz

Servicing

Important:
The AC unit must be switched on shortly every 3 months in order to lubricate all running parts and prevent sticking of compressor.

The AC unit must be serviced annually by a trained service representative. (Preferably in the cooler months of the year)

Prior to, halfway through and at the end of the cooling season, the following service steps must be carried out to ensure proper operation of your AC unit:

- Belt Tension and Compressor seat check.

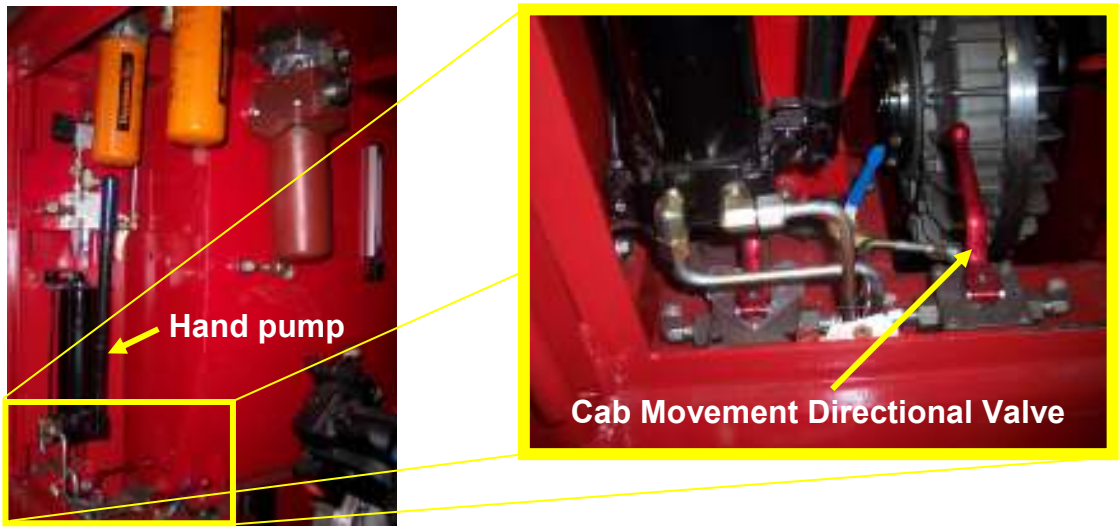
- Checking refrigerant level and checking for humidity in the unit.

- Cleaning the Condenser
  The blades of the condenser must be cleaned carefully with high pressure. They will be damaged otherwise and no air would pass through the condenser.

The annual check in the service workshop should be carried out in the beginning of the warmer months of the year and documented in your maintenance schedule.

Cab Maintenance

Cab sliding Instructions - To move the cab forward use the hand pump shown below. This will allow access to the hydraulic pump. **See Parts Section for part numbers and locations.**



Note the location of the Directional valve for moving the cab. In the position shown in the photo the hand pump will move the cab BACK into operating position. This is the correct position for operating the FTX-440. To move the cab, turn the directional valve ¼ turn to the left. Use hand pump to move cab forward. Once maintenance is complete turn directional valve ¼ turn to the right into position shown in photo and use hand pump to move cab back.

Part 4 - Troubleshooting

HVAC Troubleshooting

Malfunction	Cause	Solution
Unit does not cool down	Electrical connections interrupted	Check connections of magnetic coupling, switch, relay, temp sensor and control unit
	Air temp sensor defect	replace
	Thermostat defect*	replace
	Turn potentiometer defect**	replace
	Relay defect	replace
	Fuse defect	replace
	Compressor stops from exceeding max operating pressure*	Clean condenser, check function of condenser fan
	Filter dryer blocked*	Replace filter dryer
	Too much refrigerant*	Suction excess refrigerant
	Compressor stops from running below min operating pressure*	Check impermeability, maybe refill refrigerant
	Magnet coupling defect on compressor.*	Replace spool
	Belt broken	Replace belt
Unit cools down only for a short time.	Icing of condenser* Check electronic control device	Adjust temperature of icing protection on thermostat.
Unit does not sufficiently cool down	Not enough air passage	Clean blades of condenser and vaporizer
	Not enough refrigerant in system	Fill unit to recommended level
	Expansion valve blocked*	Clean expansion valve or replace
	Expansion valve iced from too much liquid in unit*	Replace filter dryer. Identifiable by red humidity tracer.
	Filter dryer partly blocked from icing on the dryer*	Replace filter dryer
	Air in refrigeration cycle with exceeded pressure and blister in inspection glass*	Evacuate unit and fill newly
Loud noise on the compressor	Leaking ball bearing in compressor*	Replace ball bearing
	Magnet coupling defect*	Replace magnet coupling
	Not enough oil in compressor	Add oil
Whistle noise on the belt	Belts worn out	Replace belt
	Belts too slack	Tighten belt

*= to be carried out by HVAC technician.** = if available.

Clutch Troubleshooting			
Symptom	**Step**	**Cause**	**Remedy**
Clutch slip and/ or Overheating.	1	Driving Plates	Check plates for wear. Check Driven machine. Check engine RPM
	2	Low oil Pressure	Check oil pressure feeding system Check segments 104 Check for possible oil loss.
Noise and / or overheating output bearing carrier.	1	Oil Circuit	Check oil circulation and heat exchanger
	2	Bearing failure	Replace bearing.
	3	Radial load too high	Check transmission and alignment.
	4	Slip Plates	Check oil pressure.
	5	Misalignment	See alignment section (Installation paragraph 4)
	6	Torsional Vibration	**Contact Transfluid**
	7	Tooth wear on driving ring and/or clutch plates.	Dismantle and replace driving ring and/or clutch plates.
Oil leakage at clutch side.	1	O-ring worn or damaged.	Replace bad O-ring.
Not completely disengaging. (drag of load, smoke from clutch).	1	Residual pressure > 0 psi	Check disengaging pressure.
	2	Engine rpm not at minimum.	Check engine rpm at minimum.
	3	Presence of dirt between internal and external teeth of plates.	Remove Dirt. Check the Housing all holes must be closed and all window openings must be sealed with gasket.
Final Drive Troubleshooting			
Symptom	**Step**	**Cause**	**Remedy**
Overheating.	1	Low oil level	Check and refill oil
	2	Hydraulic oil too warm	Check hydraulic circuit
	3	Brake not fully released	Check brake release pressure
Insufficient braking torque	1	Parking brake malfunction	
	2	Disc brakes worn	Replace disc brake pads
	3	Damaged Parts	Check Brake components
Sprocket Locked	1	Parking Brake Locked	Check the complete brake release
	2	Mechanical components damaged	Replace damaged parts
Oil Leakage from lifetime seal	1	Lifetime seal damaged	Replace seal
Oil Leakage from end cover	1	O-Ring Seal damaged	Replace seal
Oil Leakage from cover plugs.	1	Plug seal damaged	Replace seal
Hydraulic noise on slow down	1	Hydraulic circuit malfunction	Verify operation of Hydraulic circuit.

Hydraulic noise inside gear motor	1	Internal damage	Check the gearbox
Drive Pumps Troubleshooting			
Symptom	**Step**	**Cause**	**Remedy**
Neutral difficult or impossible to find	1	Input to pump control module is operating improperly	Check control input. Repair or replace as necessary.
	2	Check pump displacement control. Control linkages may not be secure or control orifices are blocked.	Adjust, repair or replace as necessary. (See attached series 90 manual)
	3	Repair or replace pump.	Consult Sauer-Sundstrand Authorized Service Center.
System Operating Hot	1	Check oil level in Reservoir	Fill reservoir to proper level
	2	Heat exchanger not working properly.	Check air flow and input temperature for heat exchanger. Clean, repair or replace heat exchanger.
	3	Check for low charge pressure.	Measure charge pressure. Inspect and adjust (or replace) charge relief valve, or repair leaking charge pump.
	4	Check vacuum at charge inlet for restricted lines or dirty filter	Replace filter if needed. Ensure lines are clear and of sufficient size.
	5	Check system relief pressure settings to ensure they are not too low.	Verify settings of pressure limiters and high pressure relief valves. Adjust or replace multi function valves as necessary.
	6	Check motor for internal leakage (that will produce low side system pressure and overwork the system).	Monitor motor case flow without loop flushing the circuit. (See attached series 90 manual) If flow is excessive replace motor.
	7	Check for high system pressure	Measure system pressure. If too high reduce loads.
	8	Replace transmission	Replace pump and motor.
Transmission operated properly in one direction only.	1	Input to pump control module is operating improperly	Check control input. Repair or replace as necessary.
	2	Check pump displacement control. Control linkages may not be secure or control orifices are blocked.	Adjust, repair or replace as necessary. (See attached series 90 manual)
	3	Interchange system pressure limiters, high pressure relief valves and check system valves	Interchange multi function valves. If the problem changes direction, repair or replace the valve for the non-operational side.
	4	Check charge pressure. If it decays in one direction the loop flushing valve may be sticking in one direction.	Measure charge pressure in forward and in reverse. If the pressure decays in one direction, inspect and repair the motor loop.
System will not operate in either direction	1	Check oil level in Reservoir	Fill reservoir to proper level
	2	Input to pump control module is operating improperly	Check control input. Repair or replace as necessary.
	3	Check pump displacement control. Control linkages may not be secure or control orifices are blocked.	Adjust, repair or replace as necessary. (See attached series 90 manual)

	4	Ensure that bypass valves are closed. (Open bypass valve will depressurize loop).	Close bypass valves. Replace multi function valve if defective.
	5	Check charge pressure with pump in neutral. Low charge pressure will not re-charge system loop.	If pressure is low, go to next step. (see section 4.2 for table of correct pressure readings)
	6	Check charge pressure with pump in stroke.	Low pressure in stroke indicates a motor charge relief valve or system pressure relief valve may be improperly set. If pressure is low, adjust or replace motor charge relief valve. If pressure ok go to step 9.
	7	Inspect pump charge relief valve for leaks or improper setting	Adjust or replace charge relief valve as necessary.
	8	Check charge pump inlet filter for clogging.	Replace filter if necessary.
	9	Check charge pump for sufficient charge flow.	Repair or replace the charge pump.
	10	Check system pressure	If low system pressure go to next step.
	11	Check for defective system multi-function valves.	Repair or replace bad valves
	12	Replace transmission	Replace pump and motor.
Low Motor Output Torque	1	Low system pressure at motor	If pressure at motor is low, increase setting of pressure limiter.
	2	Variable motor stuck in minimum displacement	Check control supply pressure or repair displacement control. Check motor control orifices.
	3	Check for internal leakage	Check o-rings, gaskets and fittings for leaks. Repair or replace as needed.
	4	Replace transmission	Replace pump and motor.
Improper motor output speed	1	Check oil level in Reservoir	Fill reservoir to proper level
	2	Check for low charge pressure.	Measure charge pressure. Inspect and adjust charge system as needed.
	3	Check pump output flow to ensure swash plate is not out of position.	Measure pump flow by teeing into outflow hose. Check for proper pump speed and ensure that pump is in full stroke.
	4	Check variable motor displacement control to ensure swash plate is not out of position.	Repair or replace control.
Excessive Noise and / Or Vibration	1	Check oil level in Reservoir	Fill reservoir to proper level
	2	Air in system (Can lead to cavitation).	Look for foam in reservoir. Look for leaks on inlet side of system loop. Afterwards let reservoir settle until bubbles are gone. Run system at low speed to move system fluid to reservoir. Repeat.
	3	Check pump inlet for high vacuum	Replace inlet filter as needed. Check for proper suction line size.
	4	Shaft coupling may be loose.	Replace loose shaft couplings in charge pump or replace pump or motor.
	5	Shafts not aligned properly	Align shafts.

System response is sluggish	1	Check oil level in Reservoir	Fill reservoir to proper level
	2	Check settings on multi-function valves.	Adjust and / or replace multi function valves.
	3	Check pump inlet vacuum	If inlet vacuum high, replace inlet filter.
	4	Check prime mover speed	Adjust engine speed
	5	Check charge and control pressures	Correct as needed
	6	Check system internal leakage	Check o-rings, gaskets and fittings for leaks. Repair or replace as needed.
	7	Replace transmission	Replace pump and motor.

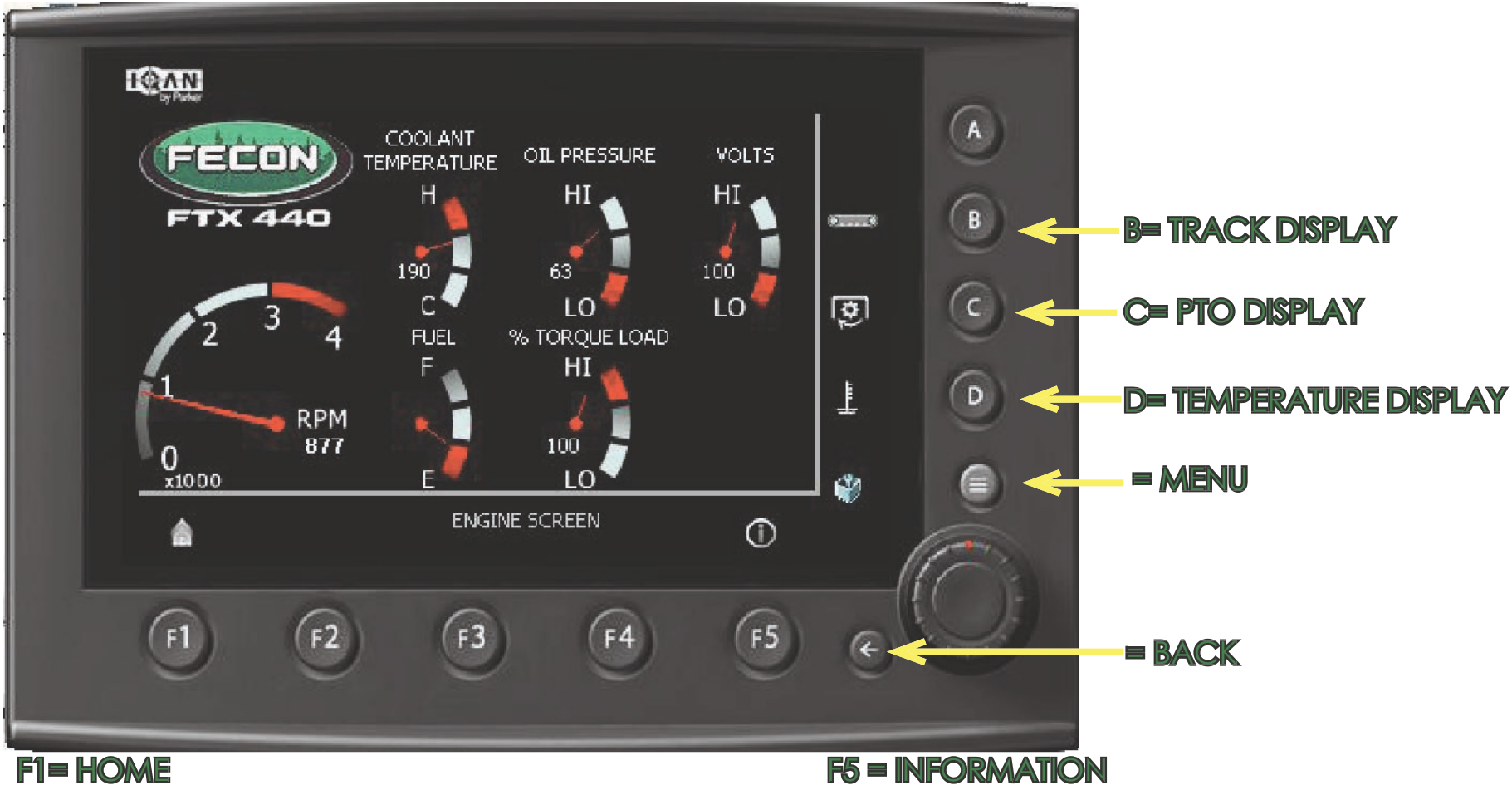
IQAN OPERATING INSTRUCTIONS

FOR THE

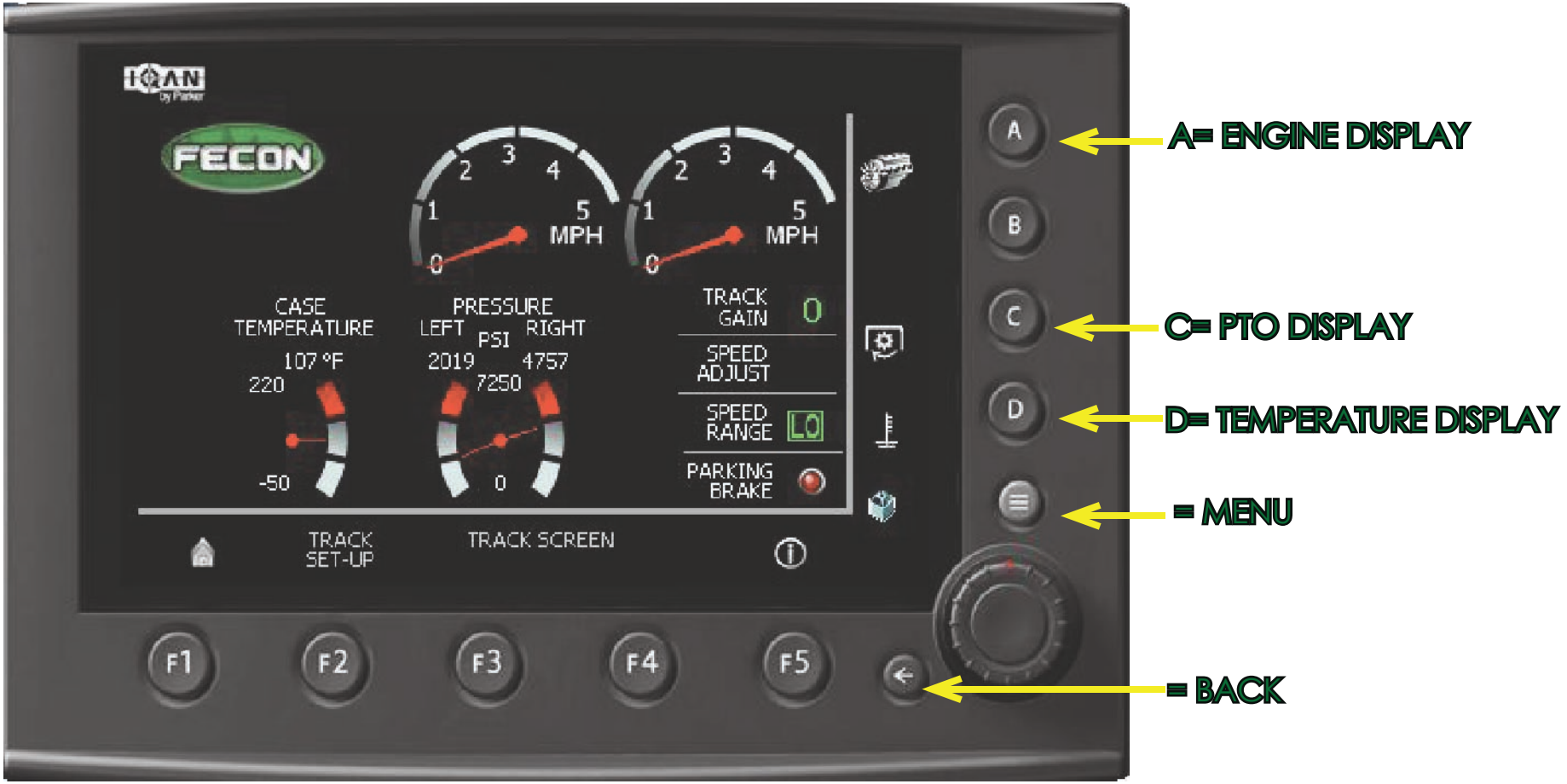
FECON FTX440 CARRIER

FECON

Startup Screen appears when the machine key is turned on. Follow the provided navigation and become familiar with each screens functions. The F1 button will return you to this screen from all areas other than the menu. When you are in the menu area, use the back button to return.



Push button A at the startup screen to open the Engine screen. All engine activity is monitored here.



Push button B at the startup screen to open the Track screen. All Track activity is monitored here.

Push button C at the startup screen to open the PTO screen. All PTO Drive activity is monitored here.

A= ENGINE DISPLAY

B= TRACK DISPLAY

C= PTO DISPLAY

= MENU

= BACK

F1= HOME

F5 = INFORMATION

Push button D at the startup screen to open the Temperature scr
Temperature are monitored here.

Push F5 button at the startup screen to see hours logged, serial number and other information about the FTX-440.

A = MAINTENANCE

B = SHUT DOWN TEST

C = FLUID COUPLER PROTECTION
RED=OFF GREEN = ON

= MENU

= BACK (to last page)

F1= HOME

Push F4 button at the startup screen (or the "C" button from the information screen)to access the Diagnostic screen. The various lights indicate operating conditions in various systems.

Green light = good / on
Red light = warning / off
Black = Inactive
Yellow = Alarm

The maintenance screen can be accessed from here. You can perform an engine shut down test as well as switch on the fluid coupler protection.

RECORD ENGINE OIL CHANGE

RECORD HYD OIL CHANGE

= MENU

= BACK (to last page)

F1= HOME

F5 = INFORMATION

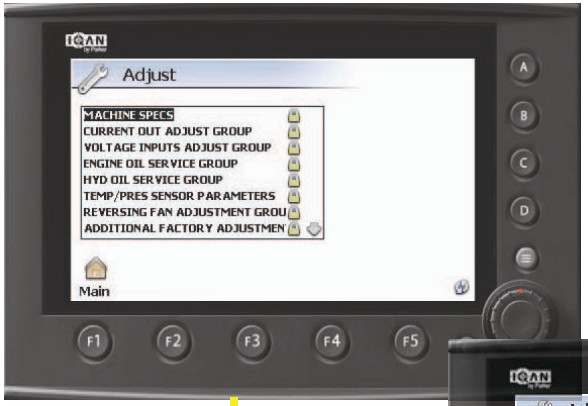
The service screen can be used to record and track scheduled maintenance on the FTX-440. The options are password protected.

= SELECTOR: ROTATE TO SCROLL, PUSH TO SELECT

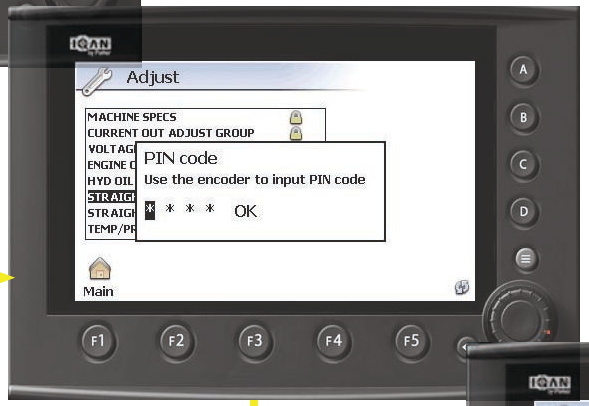
ADJUST MENU

- MACHINE SPECS
- CURRENT OUT ADJUST GROUP
- VOLTAGE INPUTS ADJUST GROUP
- ENGINE OIL SERVICE GROUP
- HYDRAULIC OIL SERVICE GROUP
- STRAIGHT TRACKING LOW RANGE
- STRAIGHT TRACKING HIGH RANGE
- TEMP/PRESSURE SENSOR PARAMETERS
- REVERSIBLE FAN ADJUST GROUP
- ADDITIONAL FACTORY ADJUSTMENT
- CONTROLS FILTER GROUP

The adjust screen has a "scrollable" menu to access many machine functions. These are adjust items that will effect machine performance if not adjusted correctly. These items are to be adjusted by qualified technicians or engineers only.



1. The Technician will choose the item from the Adjust menu that may need to be adjusted. This example *"Straight Tracking, Low Range is chosen."* A password screen will appear.



2. Use the dial selector to enter the password. Once the password is entered by the Technician, a menu of adjustable items appears.

3. In this example the Tech chooses the *"+Left Low Range Creep"* parameter. The adjust dial will appear.

4. The Tech will make adjustments based on th troubleshooting that has brought him to this screen.

= SELECTOR: ROTATE TO SCROLL, PUSH TO SELECT

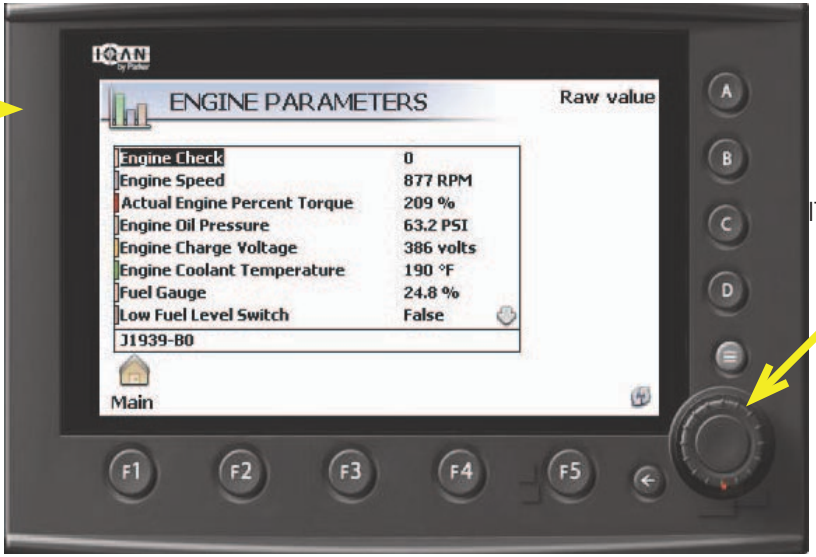
MEASURE MENU

ENGINE PARAMETERS
LEFT JOYSTICK FUNCTIONS
RIGHT JOYSTICK FUNCTIONS
TRACK PARAMETERS
FAN CONTROL GROUP
PTO / CLUTCH GROUP
TEMPERATURE GROUP
PRESSURE GROUP
DIAGNOSTICS
MODULE DIAGNOSTICS

The measure screen has a “scrollable” menu to observe many machine processes. These items can be useful in troubleshooting minor issues.

MEASURE MENU

- ENGINE PARAMETERS
- LEFT JOYSTICK FUNCTIONS
- RIGHT JOYSTICK FUNCTIONS
- TRACK PARAMETERS
- FAN CONTROL GROUP
- PTO / CLUTCH GROUP
- TEMPERATURE GROUP
- PRESSURE GROUP
- DIAGNOSTICS
- MODULE DIAGNOSTICS



ENGINE PARAMETERS

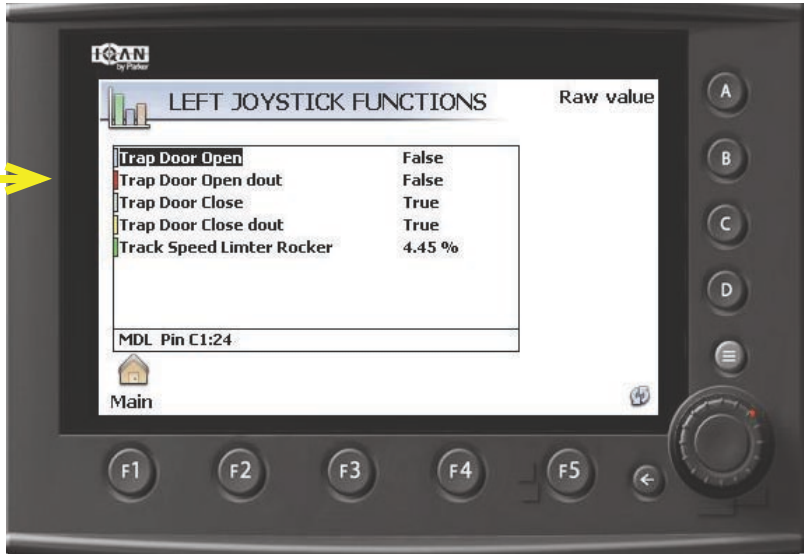
THE FIRST EIGHT (SHADED) MENU ITEMS ARE SHOWN ON INITIAL OPENING OF THE ENGINE PARAMETERS SCREEN. BY USING THE ***DIAL SELECTOR*** ALL OF THE ITEMS LISTED BELOW CAN BE ACCESSED.

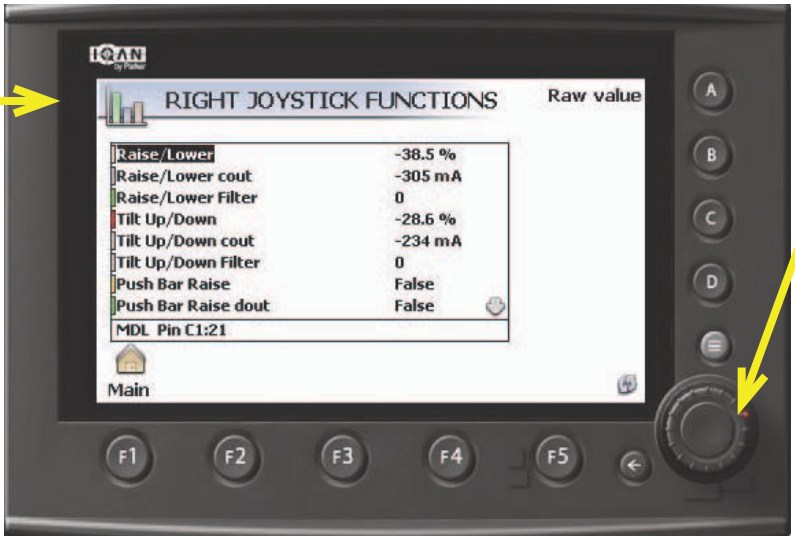
- ENGINE CHECK
- ENGINE SPEED
- ACTUAL ENGINE % TORQUE
- ENGINE OIL PRESSURE
- ENGINE CHARGE VOLTAGE
- ENGINE COOLANT TEMP
- FUEL GUAGE
- LOW FUEL LEVEL SWITCH
- ACTIVE DIAG TROB CODES
- PROTECT LAMP
- OCCURENCE COUNT
- FMI
- SPN - 3 MOST SIGNIFICANT BIT
- SPN - SECOND BYTE
- SPN - 8 LEAST SIGNIFICANT BIT
- RED STOP LAMP

- AMBER WARNING LAMP
- ACTIVE DIAG TROB CODES, PRE
- PROTECT LAMP PRE
- OCCURENCE COUNT PRE
- FMI PRE
- SPN - 3 MOST SIGNIFICANT B
- SPN - SECOND BYTE PRE
- SPN - 8 LEAST SIGNIFICANT
- RED STOP LAMP PRE
- AMBER WARNING LAMP PRE
- ENGINE TURBO CHARGE BOOST PRESSURE
- ENGINE TOTAL FUEL USED
- ENGINE FUEL DELIVERY PRESSURE
- ENGINE COOLANT LEVEL
- ENGINE FUEL RATE
- ENGINE FUEL TEMPERATURE
- ENGINE INTAKE 1 MANIFOLD TEMPERATURE

MEASURE MENU

- ENGINE PARAMETERS
- LEFT JOYSTICK FUNCTIONS
- RIGHT JOYSTICK FUNCTIONS
- TRACK PARAMETERS
- FAN CONTROL GROUP
- PTO / CLUTCH GROUP
- TEMPERATURE GROUP
- PRESSURE GROUP
- DIAGNOSTICS
- MODULE DIAGNOSTICS





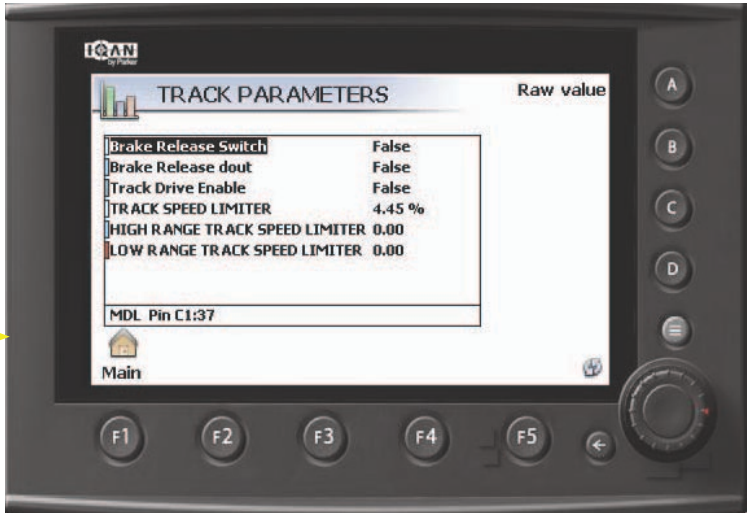
LEFT AND RIGHT JOYSTICK FUNCTIONS

THE FIRST EIGHT (SHADED) MENU ITEMS ARE SHOWN ON INITIAL OPENING OF THE RIGHT JOYSTICK FUNCTIONS SCREEN. BY USING THE ***DIAL SELECTOR*** ALL OF THE ITEMS LISTED BELOW CAN BE ACCESSED.

- RAISE / LOWER
- RAISE / LOWER COUT
- RAISE / LOWER FILTER
- TILT UP / DOWN
- TILT UP / DOWN COUT
- TILT UP / DOWN FILTER
- PUSH BAR RAISE
- PUSH BAR RAISE DOUT
- PUSH BAR LOWER
- PUSH BAR LOWER DOUT
- HORN
- HORN DOUT

MEASURE MENU

- ENGINE PARAMETERS
- LEFT JOYSTICK FUNCTIONS
- RIGHT JOYSTICK FUNCTIONS
- TRACK PARAMETERS
- FAN CONTROL GROUP
- PTO / CLUTCH GROUP
- TEMPERATURE GROUP
- PRESSURE GROUP
- DIAGNOSTICS
- MODULE DIAGNOSTICS



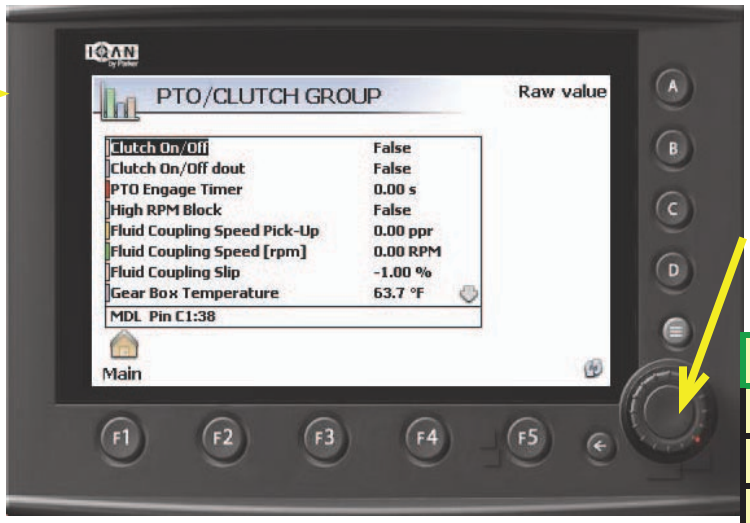
TRACK PARAMETERS & FAN CONTROL GROUP

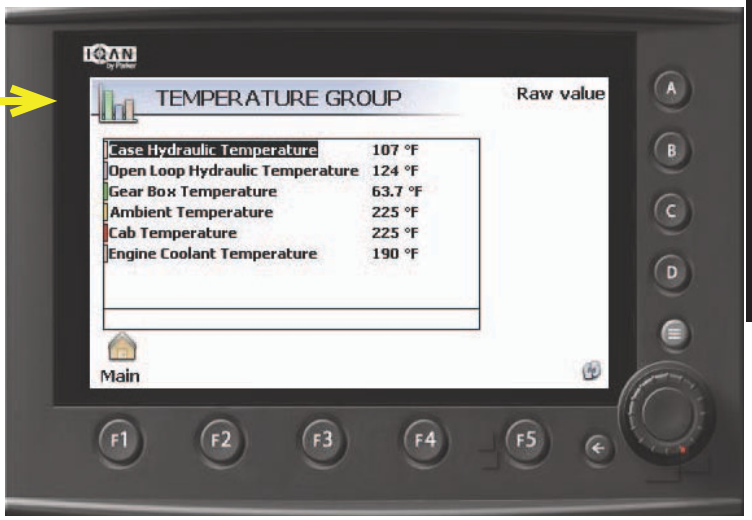
THE FIRST EIGHT (SHADED) MENU ITEMS ARE SHOWN ON INITIAL OPENING OF THE FAN CONTROL GROUP SCREEN. BY USING THE ***DIAL SELECTOR*** ALL OF THE ITEMS LISTED BELOW CAN BE ACCESSED.

- COOLING FAN MAN REVERSE
- FAN CONTROL SMC
- COOLING LOGIC DMAC
- HYD COOLER FAN CONTROL COUT
- ENG COOLING FAN REVERSE DOUT
- FAN REVERSE SPEED
- FAN FORWARD TIME SET
- FAN FORWARD TIMER
- FAN REVERSE TIME SET
- FAN REVERSE TIMER

MEASURE MENU

ENGINE PARAMETERS
LEFT JOYSTICK FUNCTIONS
RIGHT JOYSTICK FUNCTIONS
TRACK PARAMETERS
FAN CONTROL GROUP
PTO / CLUTCH GROUP
TEMPERATURE GROUP
PRESSURE GROUP
DIAGNOSTICS
MODULE DIAGNOSTICS





PTO / CLUTCH GROUP

THE FIRST EIGHT (SHADED) MENU ITEMS ARE SHOWN ON INITIAL OPENING OF THE PTO / CLUTCH GROUP SCREEN. BY USING THE ***DIAL SELECTOR*** ALL OF THE ITEMS LISTED BELOW CAN BE ACCESSED.

CLUTCH ON/OFF
CLUTCH ON/OFF DOUT
PTO ENGAGE TIMER
HIGH RPM BLOCK
FLUID COUPLING SPEED PICKUP
FLUID COUPLING SPEED (RPM)
FLUID COUPLING SLIP
GEAR BOX TEMPERATURE
GEAR BOX SHUT DOWN TEMPERATURE 180 DEG
GEAR BOX RESET TEMPERATURE 160 DEG F
HIGH GEAR BOX SHUT DOWN

MEASURE MENU

ENGINE PARAMETERS
LEFT JOYSTICK FUNCTIONS
RIGHT JOYSTICK FUNCTIONS
TRACK PARAMETERS
FAN CONTROL GROUP
PTO / CLUTCH GROUP
TEMPERATURE GROUP
PRESSURE GROUP
DIAGNOSTICS
MODULE DIAGNOSTICS

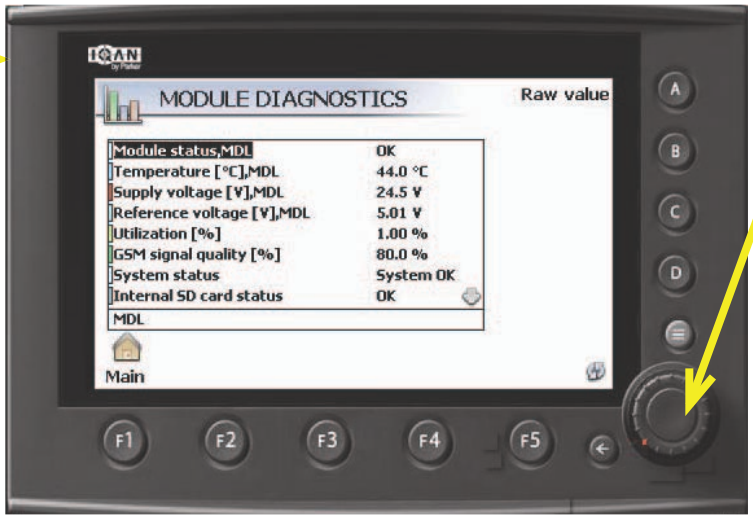
DIAGNOSTICS

THE FIRST EIGHT (SHADED) MENU ITEMS ARE SHOWN ON INITIAL OPENING OF THE DIAGNOSTICS GROUP SCREEN. BY USING THE ***DIAL SELECTOR*** ALL OF THE ITEMS LISTED BELOW CAN BE ACCESSED.

SEAT SWITCH
CLOSED LOOP RETURN FILTER
OPEN LOOP RETURN FILTER
AIR FILTER ALARM
LEFT CHARGE FILTER BYPASS
RIGHT CHARGE FILTER BYPASS
LOW HYD OIL LEVEL SWITCH
LOW FUEL LEVEL SWITCH
ENGINE SHUT DOWN TEST SWITCH
ENGINE SHUT DOWN
OPEN LOOP TEMP MESSAGE
CASE TEMP MESSAGE
GEAR BOX TEMP MESSAGE
ENGINE COOLANT TEMP
ENGINE CHECK

MEASURE MENU

- ENGINE PARAMETERS
- LEFT JOYSTICK FUNCTIONS
- RIGHT JOYSTICK FUNCTIONS
- TRACK PARAMETERS
- FAN CONTROL GROUP
- PTO / CLUTCH GROUP
- TEMPERATURE GROUP
- PRESSURE GROUP
- DIAGNOSTICS
- MODULE DIAGNOSTICS



MODULE DIAGNOSTICS

THE FIRST EIGHT (SHADED) MENU ITEMS ARE SHOWN ON INITIAL OPENING OF THE MODULE DIAGNOSTICS GROUP SCREEN. BY USING THE ***DIAL SELECTOR*** ALL OF THE ITEMS LISTED BELOW CAN BE ACCESSED.

- MODULE STATUS, MDL
- TEMPERATURE [DEG C], MDL
- SUPPLY VOLTAGE [V], MDL
- REFERENCE VOLTAGE [V], MDL
- UTILIZATION [%]
- GSM SIGNAL QUALITY [%]
- SYSTEM STATUS
- INTERNAL SD CARD STATUS
- EXTERNAL SD CARD STATUS
- MACHINE ID
- TEMPERATURE [DEG C] XA2-A0
- SUPPLY VOLTAGE [V] XA2-A0
- REF VOLTAGE [V] XA2-A0
- MODULE STATUS XA2-A0
- TEMPERATURE [DEG C] XA2-A4

- TEMPERATURE [DEG C]
- SUPPLY VOLTAGE [V]
- REF VOLTAGE [V] XA2-
- MODULE STATUS XA2 -
- TEMPERATURE [DEG C] XT2
- SUPPLY VOLTAGE [V] XT2
- REF VOLTAGE [V] XT2
- MODULE STATUS XT2
- MALFUNCTION ECM
- AMBER WARNIG ECM
- MODULE STATUS ECM
- PROTECT ECM

FTX 440
Parts Manual

3460 Grant Drive, Lebanon, OH 45036
Toll Free: 800-528-3113 • www.fecon.com

Rev D 1-3-07

FTX-440

CONTENTS

SAFETY FIRST

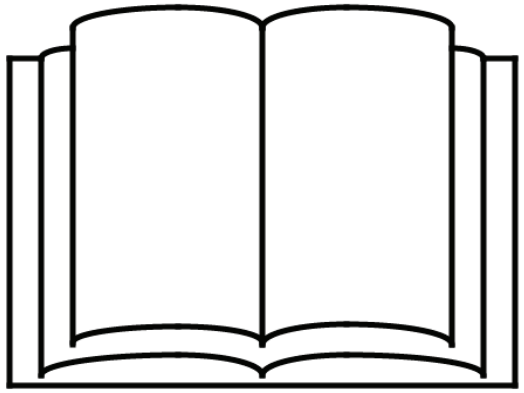
> With any piece of equipment, new or used, the most important part of its operation is **SAFETY!**

> It is important that the **SAFETY** video is viewed before operating this equipment.

> Fecon Inc. encourages you and your employees to familiarize yourselves with your new equipment and to stress safe operation.

>This symbol  is used to call attention to safety procedures.

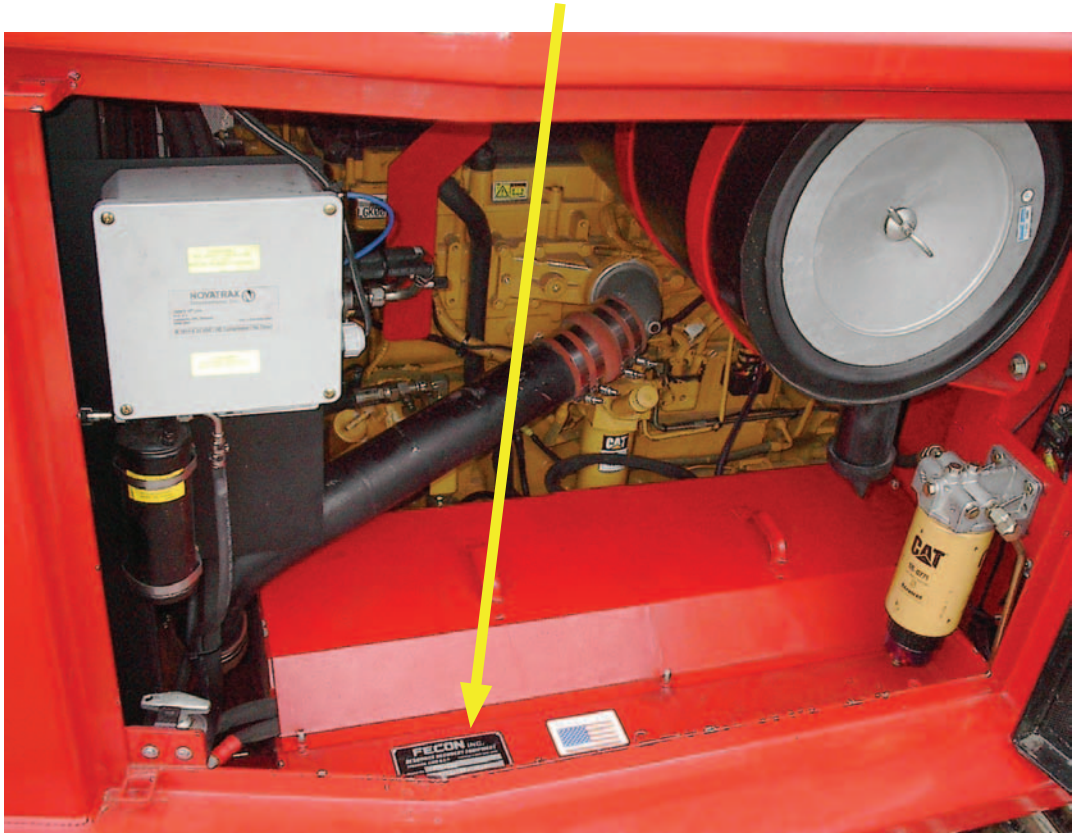
Read all the instructions in this manual before operating the equipment.



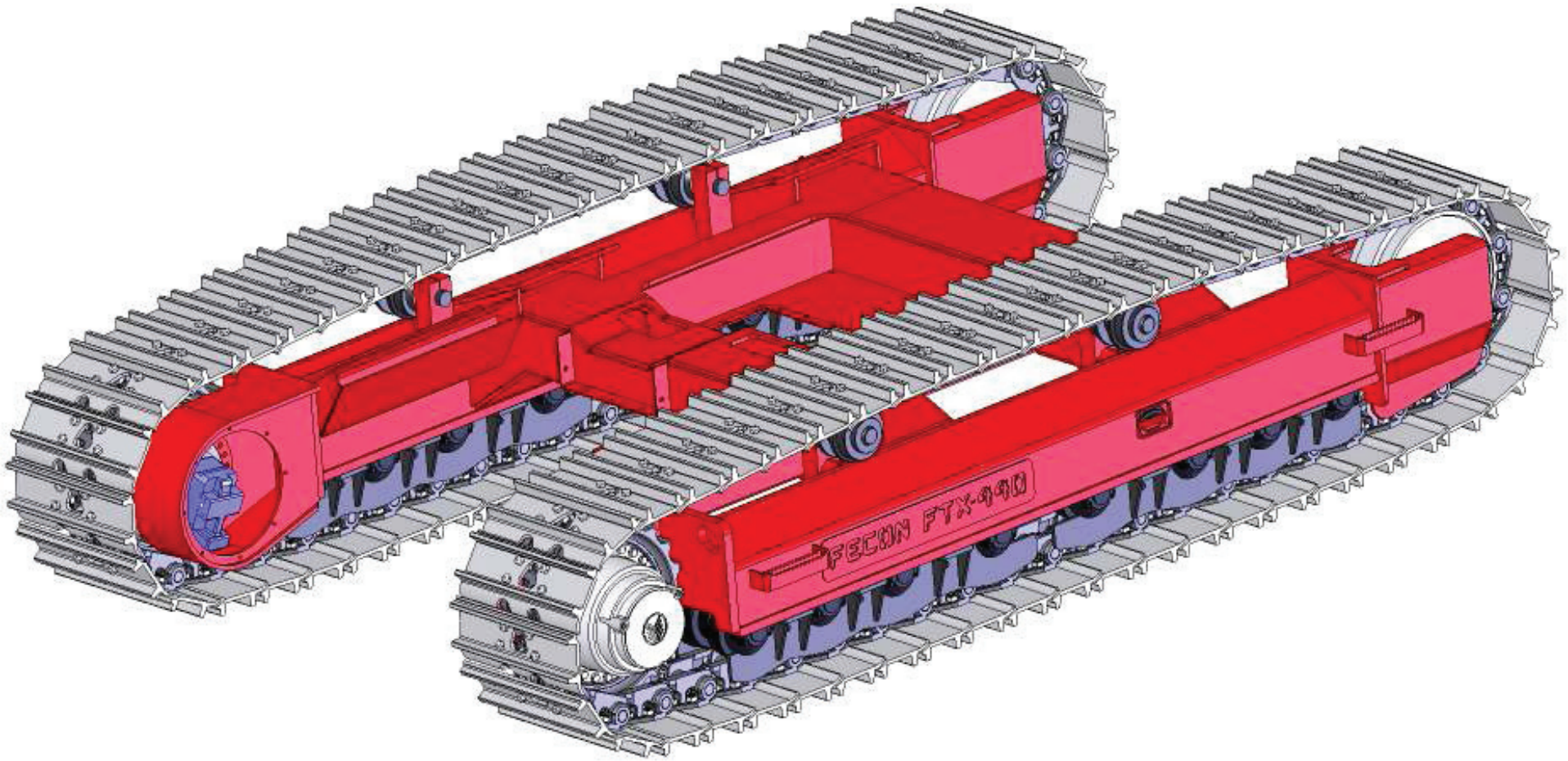
FIND YOUR SERIAL NUMBER AND RECORD IT HERE FOR REFERENCE

_____

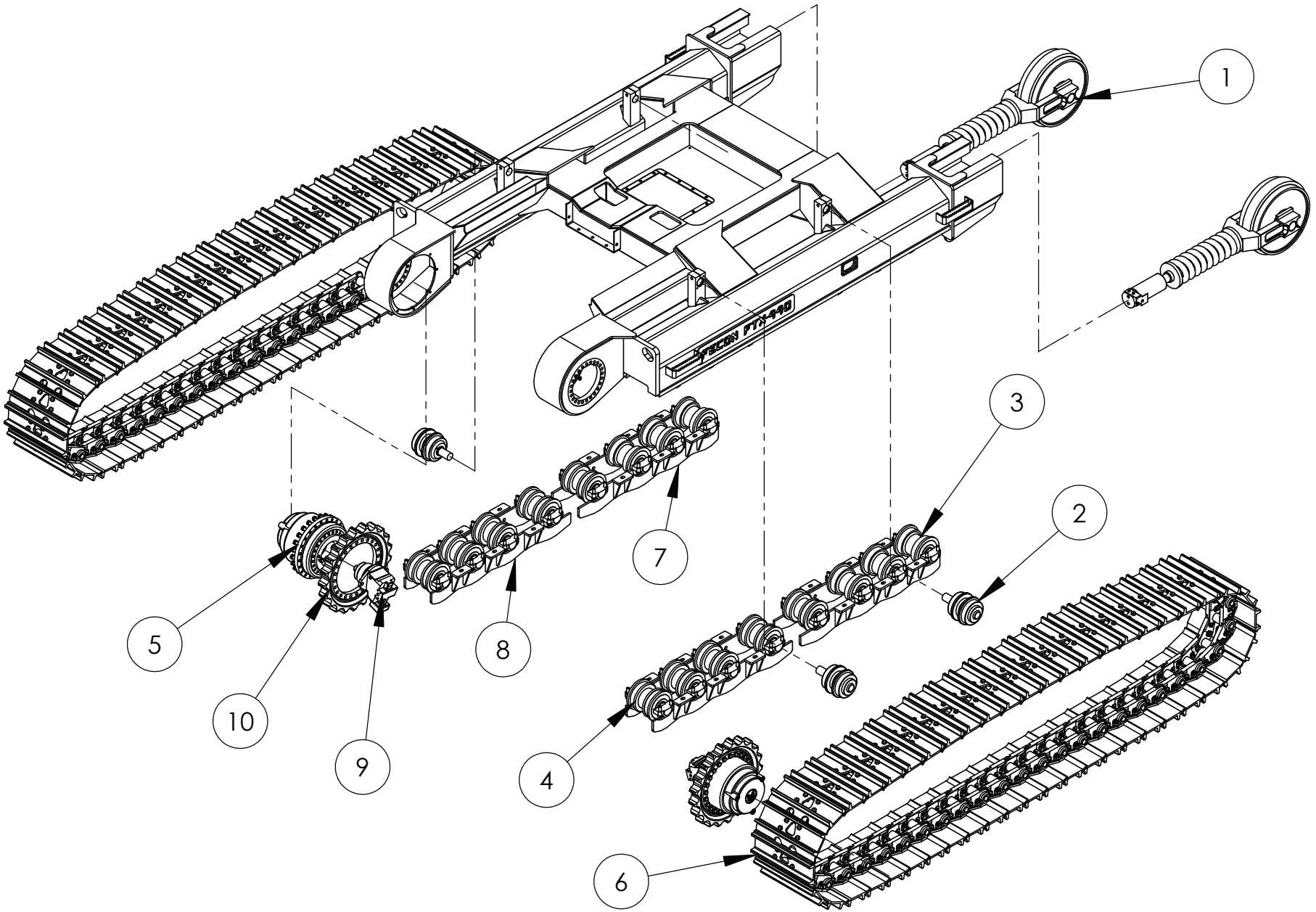
THE SERIAL NUMBER FOR YOUR FTX440 CARRIER IS LOCATED IN THE RIGHT REAR ENGINE COMPARTMENT ON THE BOTTOM LEFT AS SHOWN HERE.



FTX-440 UNDERCARRIAGE PARTS

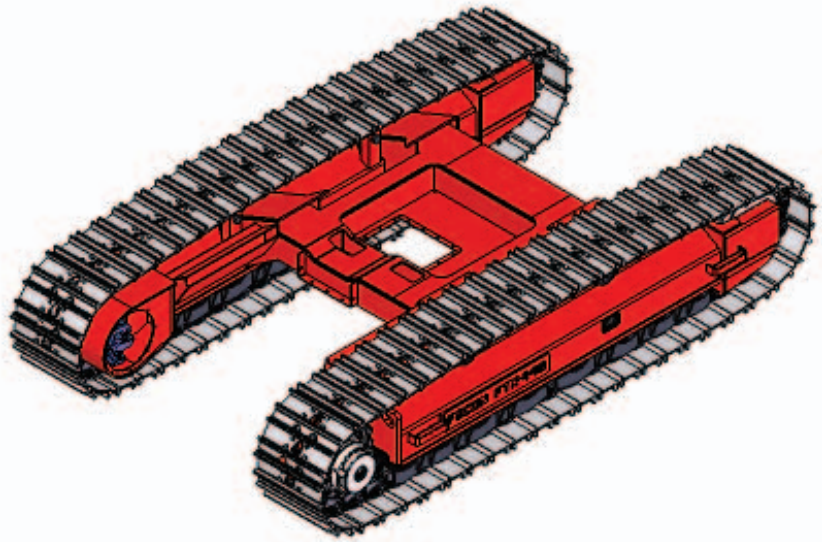


UNDERCARRIAGE PARTS



UNDERCARRIAGE BOM

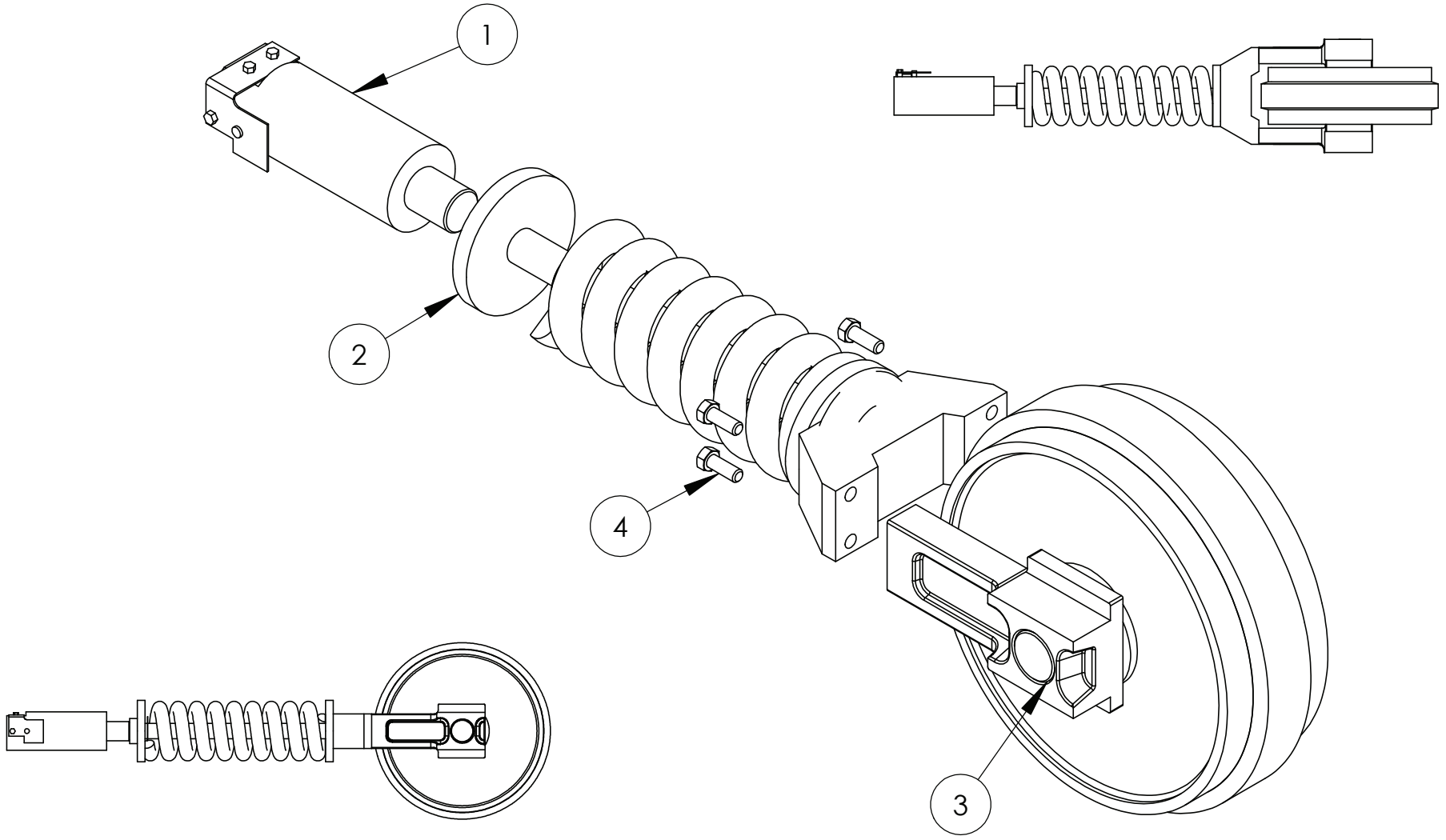
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	44-179-2998	TRACK ADJUSTER RECOIL GROUP	2
2	44-6Y-1781	CARRIER ROLLER	4
3	44-201-4812	DOUBLE FLANGE ROLLER ASM	10
4	44-201-4813	SINGLE FLANGE ROLLER ASM	6
5	440-15-001	GEARBOX BNA FINAL DRIVE 68.7:1	2
6	44-231-0048	TRACK GROUP, 48 X 60	2
7	43518-22B	STONE GUARD RH WELD	4
8	43518-23B	STONE GUARD LH WELD	4
9	440-60-001	MOTOR HYD SAUER 110CC 2 SPEED	2
10	440-15-006	SPROCKET 27.09 WELD & MACH	2



IDLER-TRACK ADJUSTER RECOIL GROUP

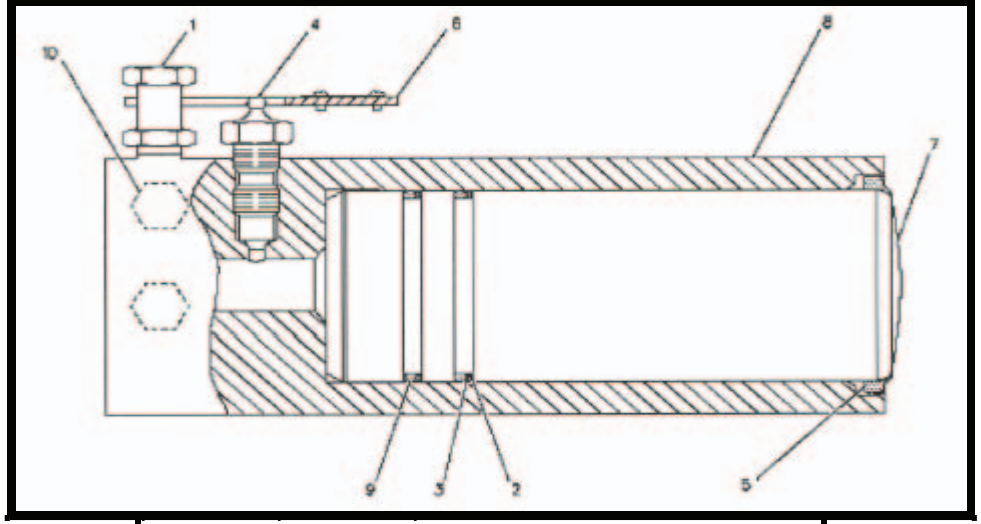
FECON ASSEMBLY 44-239-4337

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	44-179-2998	TRACK ADJUSTER STD	1
2	44-179-2997	SPRING GP-RECOIL	1
3	44-115-3696	IDLER GROUP FRONT	1
4	BLT.75X7	BOLT 3/4-10 GR 8 X 2 L	4



TRACK ADJUSTMENT

Group # Group Name
44-179-2998 ADJUSTMENT GP - HYDRAULIC TRACK



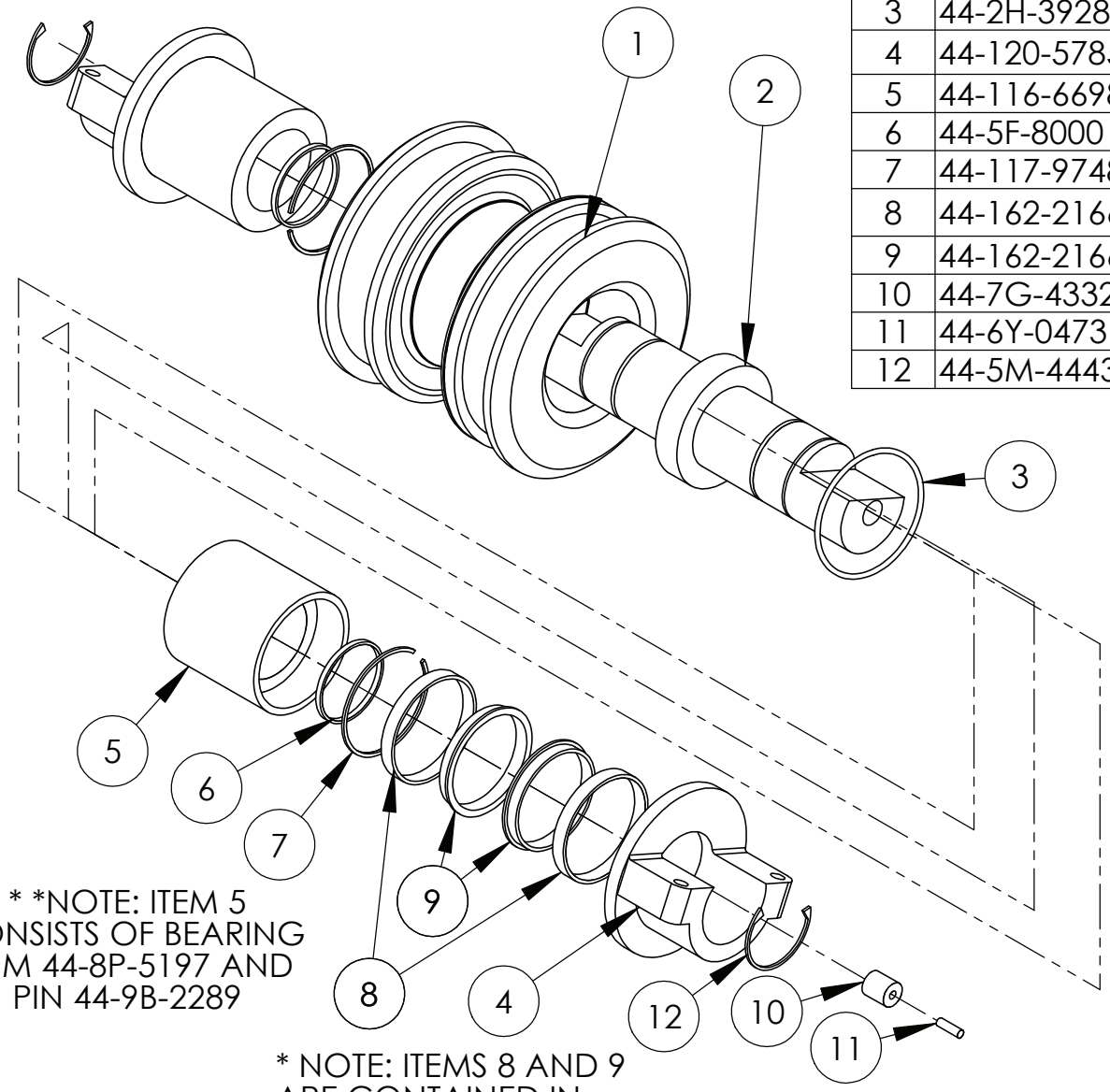
44-179-2998 TRACK ADJUSTER BOM

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	44-2S-5926	Fitting - Grease	1
2	44-7Y-1257	Ring - Backup	2
3	44-093-1514	Ring - Backup	2
4	44-095-2927	Valve - Fill	1
5	44-099-0121	Seal - Lip Type	1
6	44-113-2824	Plate As	1
7	44-179-3007	Piston	1
8	44-179-3008	Cylinder	1
9	44-095-1622	Seal - O - Ring	2
10	44-8T-4191	Bolt (M10X1.5X16-MM)	2

44-201-4812 D6H TRACK ROLLER ASSEMBLY

ITEM NO.		DESCRIPTION	QTY.
1	44-120-5767	RIM ASM- DOUBLE FLANGE	1
2	44-116-6702	SHAFT TRACK ROLLER	1
3	44-2H-3928	SEAL O-RING	1
4	44-120-5785	COLLAR END	2
5	44-116-6698**	BUSHING	2
6	44-5F-8000	SEAL O-RING	2
7	44-117-9748	RING RETAINER	2
8	44-162-2166A *	RING TORIC	4
9	44-162-2166B *	SEAL O-RING	4
10	44-7G-4332	STOPPER	2
11	44-6Y-0473	PLUG- CLEAR	2
12	44-5M-4443	RING LOCK	2

NOTE: ITEMS 4 THROUGH 12 (COLLAR AND BUSHING ASSEMBLIES) ARE IDENTICAL ON EACH END.

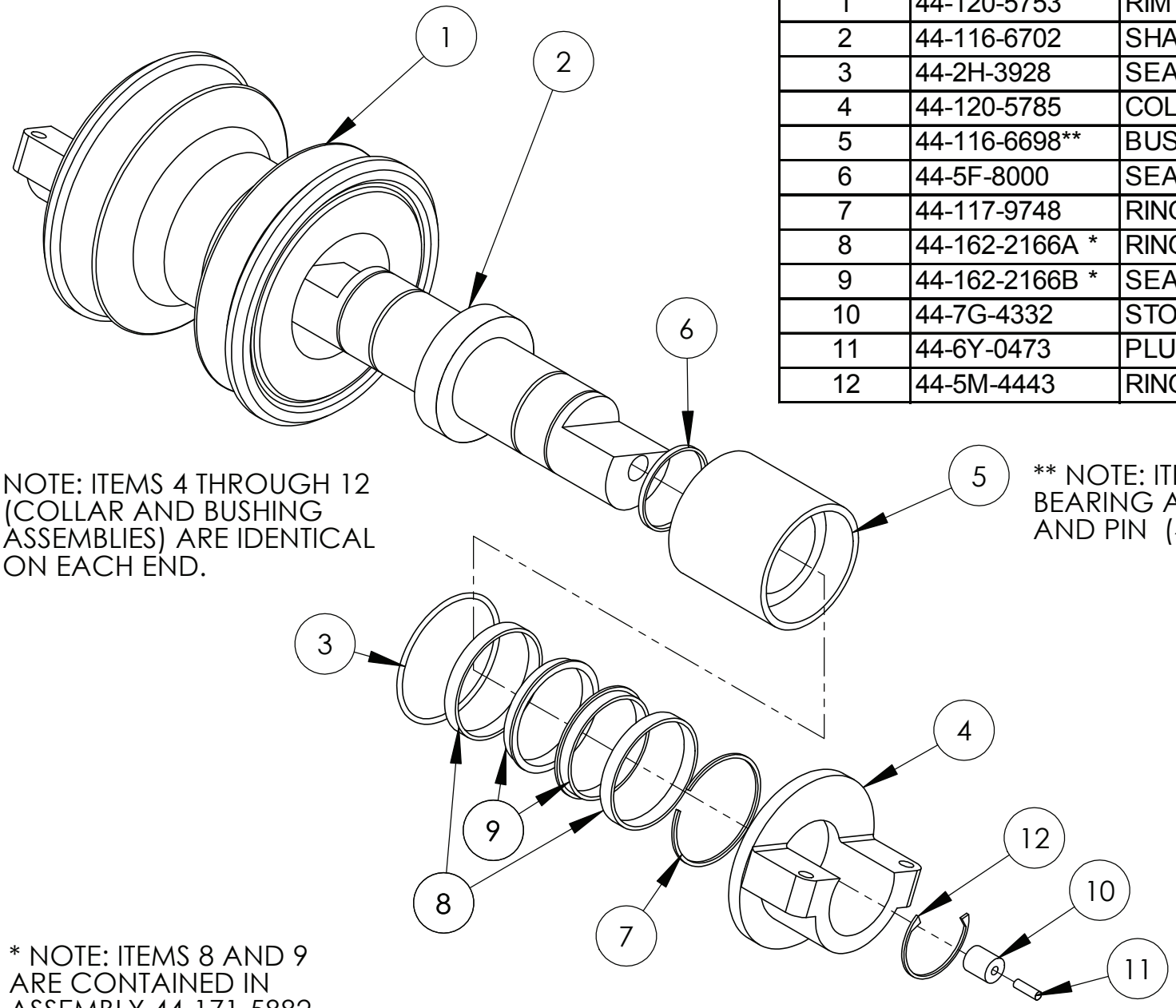


* *NOTE: ITEM 5 CONSISTS OF BEARING ASM 44-8P-5197 AND PIN 44-9B-2289

* NOTE: ITEMS 8 AND 9 ARE CONTAINED IN ASSEMBLY 44-4S-8984.

44-201-4813 D6H TRACK ROLLER ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	44-120-5753	RIM ASM- SINGLE FLANGE	1
2	44-116-6702	SHAFT TRACK ROLLER	1
3	44-2H-3928	SEAL O-RING	1
4	44-120-5785	COLLAR END	2
5	44-116-6698**	BUSHING	2
6	44-5F-8000	SEAL O-RING	2
7	44-117-9748	RING RETAINER	2
8	44-162-2166A *	RING TORIC	4
9	44-162-2166B *	SEAL RING	4
10	44-7G-4332	STOPPER	2
11	44-6Y-0473	PLUG- CLEAR	2
12	44-5M-4443	RING LOCK	2



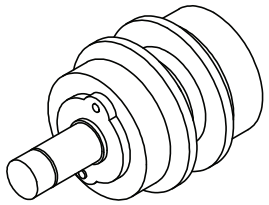
NOTE: ITEMS 4 THROUGH 12 (COLLAR AND BUSHING ASSEMBLIES) ARE IDENTICAL ON EACH END.

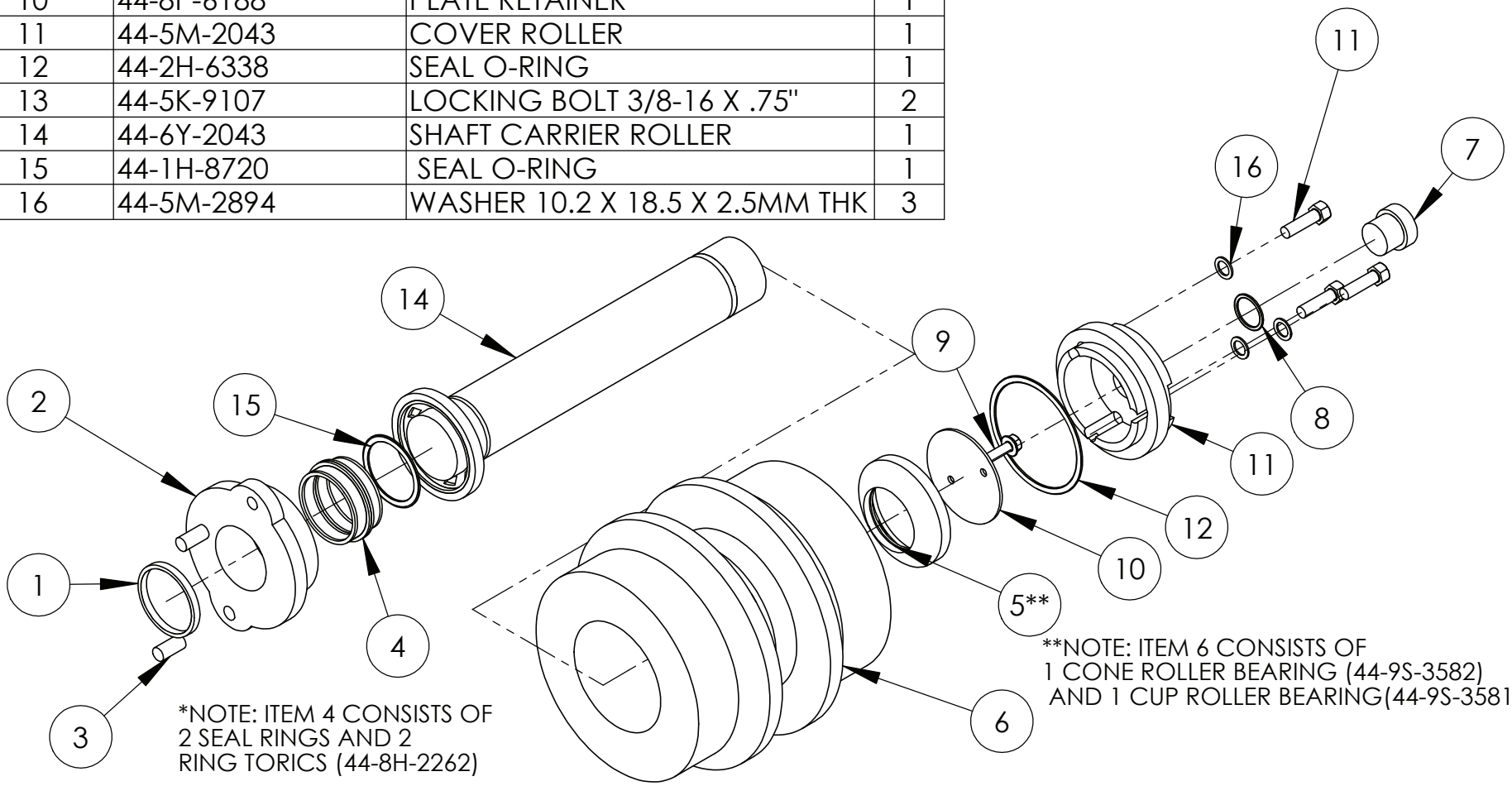
** NOTE: ITEM 5 CONSISTS OF BEARING ASM (44- 8P-5197) AND PIN (44-9B-2289).

* NOTE: ITEMS 8 AND 9 ARE CONTAINED IN ASSEMBLY 44-171-5882.

44-6Y-1781 - D6H CARRIER ROLLER

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	44-7H-4574	RING	1
2	44-7H-4571	COLLAR ASM	1
3	44-1M-4291	DOWEL	2
4*	44-9W-6647	SEALING RING ASM	2
5**	44-126-1347	BEARING ASM	2
6	44-9S-8320	ROLLER ASM	1
7	44-2P-0347	PLUG	1
8	44-1S-8947	SEAL O-RING	1
9	44-0S-1594	3/8-16 X 1"	3
10	44-8P-6188	PLATE RETAINER	1
11	44-5M-2043	COVER ROLLER	1
12	44-2H-6338	SEAL O-RING	1
13	44-5K-9107	LOCKING BOLT 3/8-16 X .75"	2
14	44-6Y-2043	SHAFT CARRIER ROLLER	1
15	44-1H-8720	SEAL O-RING	1
16	44-5M-2894	WASHER 10.2 X 18.5 X 2.5MM THK	3



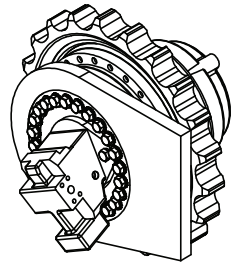


*NOTE: ITEM 4 CONSISTS OF
2 SEAL RINGS AND 2
RING TORICS (44-8H-2262)

**NOTE: ITEM 6 CONSISTS OF
1 CONE ROLLER BEARING (44-9S-3582)
AND 1 CUP ROLLER BEARING(44-9S-3581)

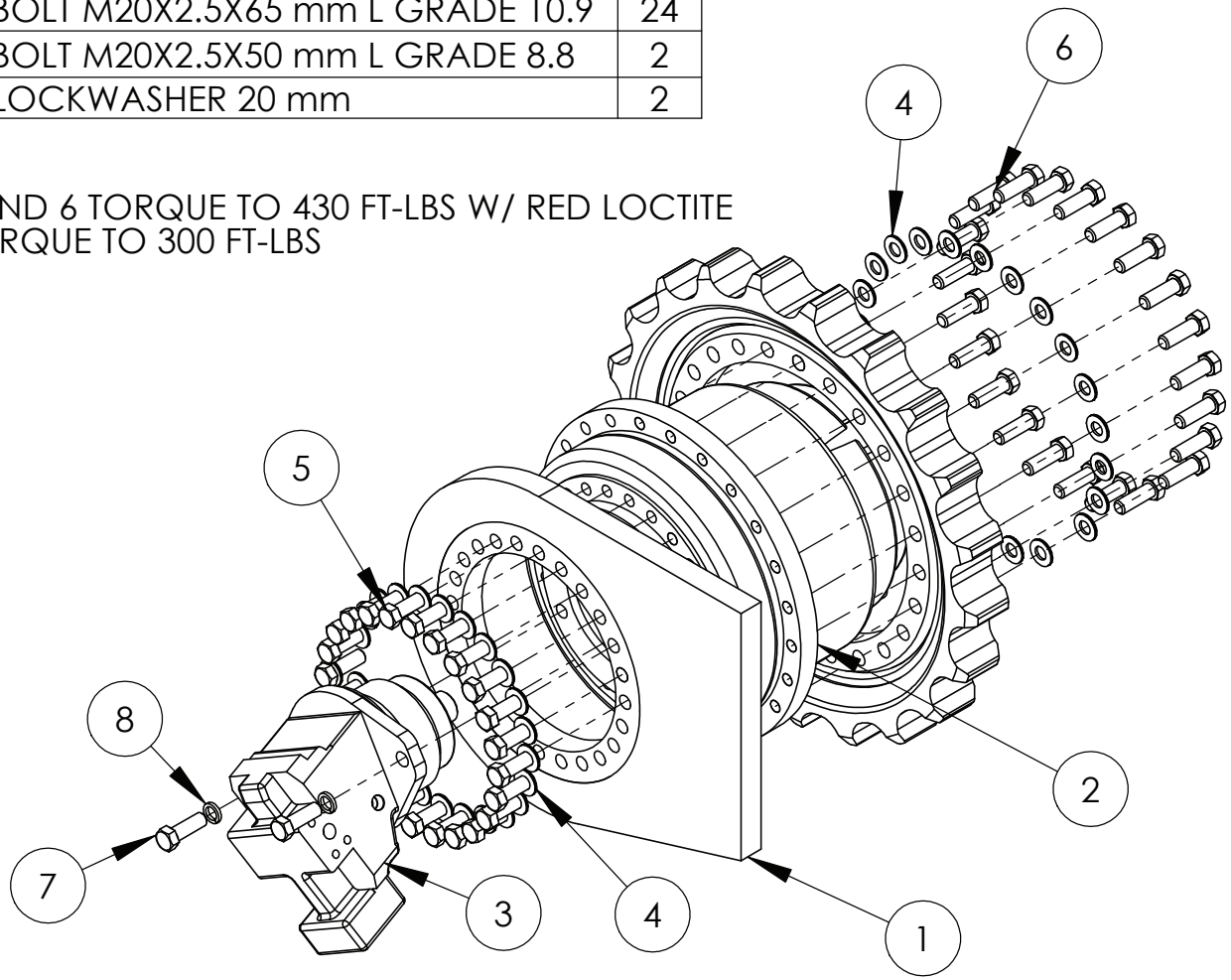
FINAL DRIVE TORQUE SPECIFICATIONS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	43516-63A	FINAL DRIVE MTG PLT MACH	1
2	440-15-001	GEARBOX BNA FINAL DRIVE 68.7:1	1
3	440-60-001	HYDRAULIC DRIVE MOTOR	1
4	W12NL-L	3/4" NORDLOCK LG DIA	48
5	B20M-80-10.9	BOLT M20X2.5X80 mm L GRADE 10.9	24
6	B20M-65-10.9	BOLT M20X2.5X65 mm L GRADE 10.9	24
7	B20M-50-8.8	BOLT M20X2.5X50 mm L GRADE 8.8	2
8	W20ML	LOCKWASHER 20 mm	2



NOTES:

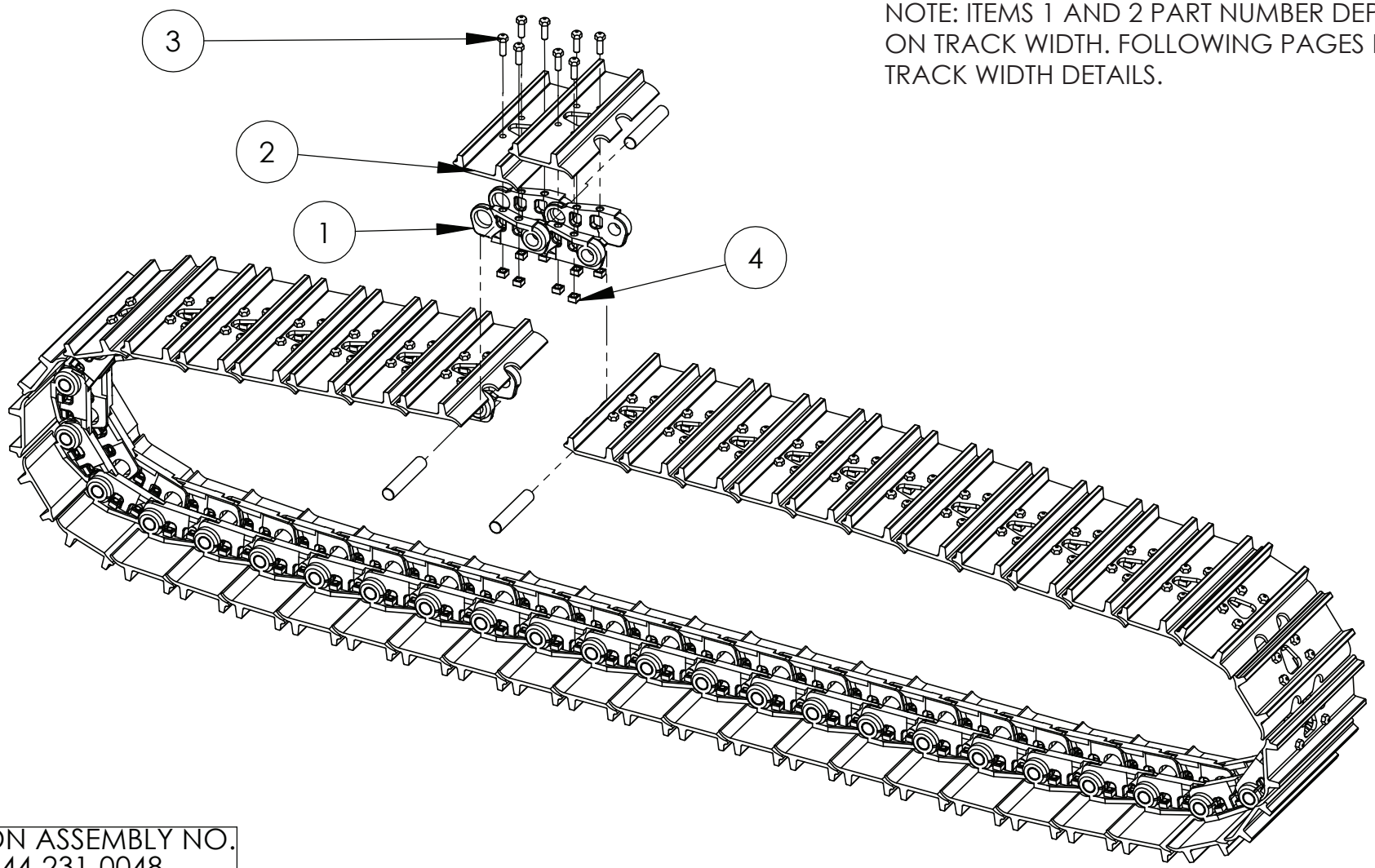
ITEMS 5 AND 6 TORQUE TO 430 FT-LBS W/ RED LOCTITE
ITEM 7 TORQUE TO 300 FT-LBS



TRACK GROUP, 48 X 60

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	SEE NOTE	TRACK LINK	48
2	SEE NOTE	TRACK SHOE	48
3	44-6Y-0846	LINK BOLT	192
4	44-1S-1860	LINK NUT	192

NOTE: ITEMS 1 AND 2 PART NUMBER DEPENDS ON TRACK WIDTH. FOLLOWING PAGES HAVE TRACK WIDTH DETAILS.

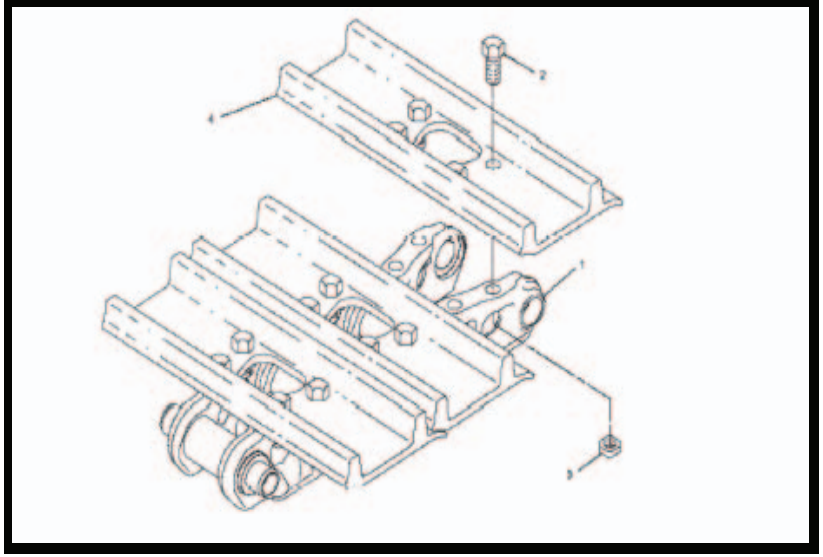


FECON ASSEMBLY NO.
44-231-0048

600MM , 700MM TRACK

600 MM Track

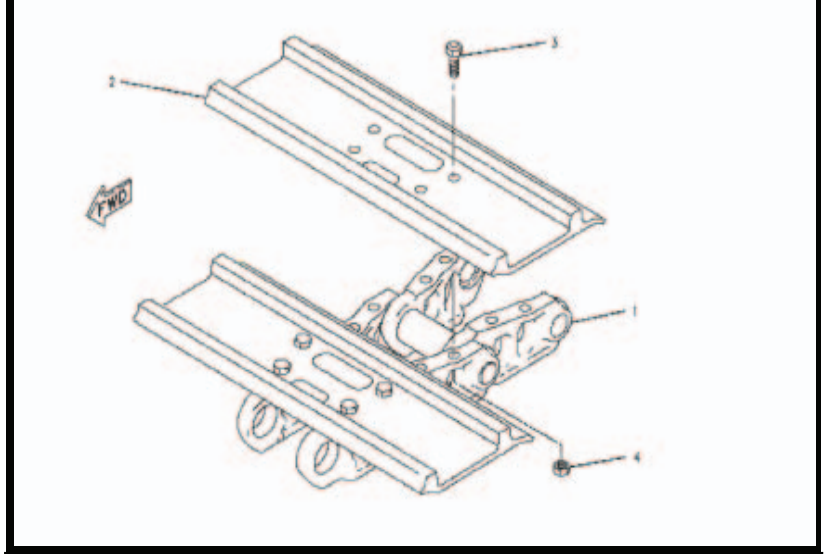
Group # Group Name
44-22-1253 600MM Track Group



ITEM NO.	PART NO.	DESCRIPTION	QTY
1	44-213-1932	TRACK LINK ASM	1
2	44-6Y-0846	TRACK BOLT	192
3	44-9W-3361	TRACK NUT	192
4	44-152-8628	TRACK SHOE	48

700 MM Track

Group # Group Name
44-224-1252 700MM Track Group

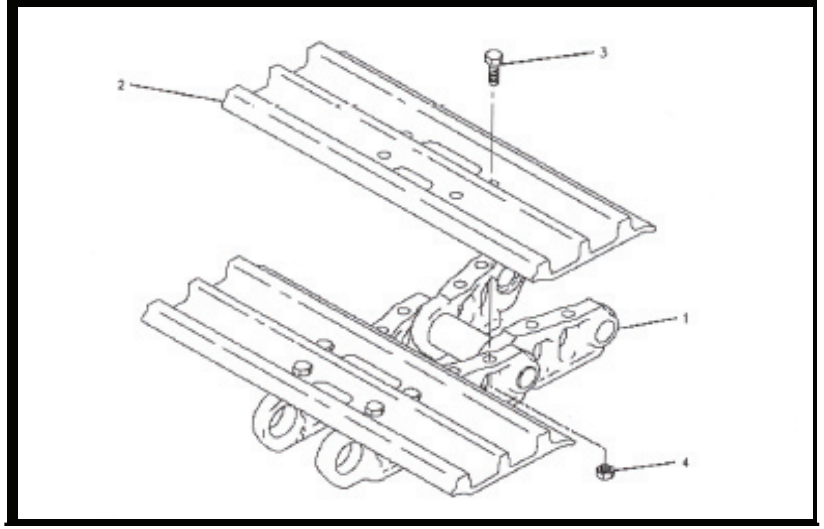


ITEM NO.	PART NO.	DESCRIPTION	QTY
1	44-213-1932	TRACK LINK ASM	1
2	44-8E-8814	TRACK SHOE	48
3	44-6Y-0846	TRACK BOLT	192
4	44-9W-3361	TRACK NUT	192

800MM, 900 MM TRACK

800 MM Track

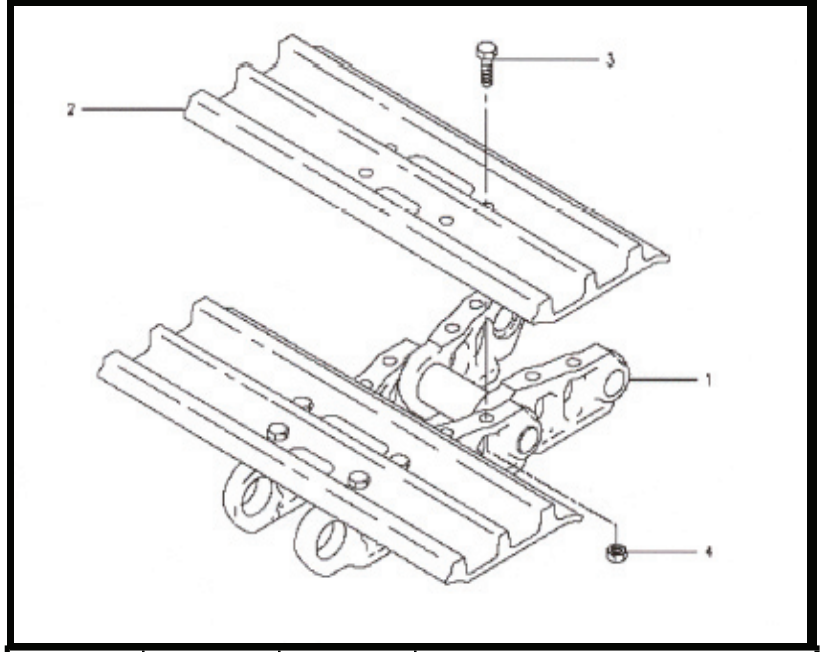
Group # Group Name
44-124-153 800MM Track Group



ITEM NO.	PART NO.	DESCRIPTION	QTY
1	44-213-1932	TRACK LINK ASM	1
2	44-6Y-2126	TRACK SHOE	48
3	44-6Y-0846	TRACK BOLT	192
4	44-9W-3361	TRACK NUT	192

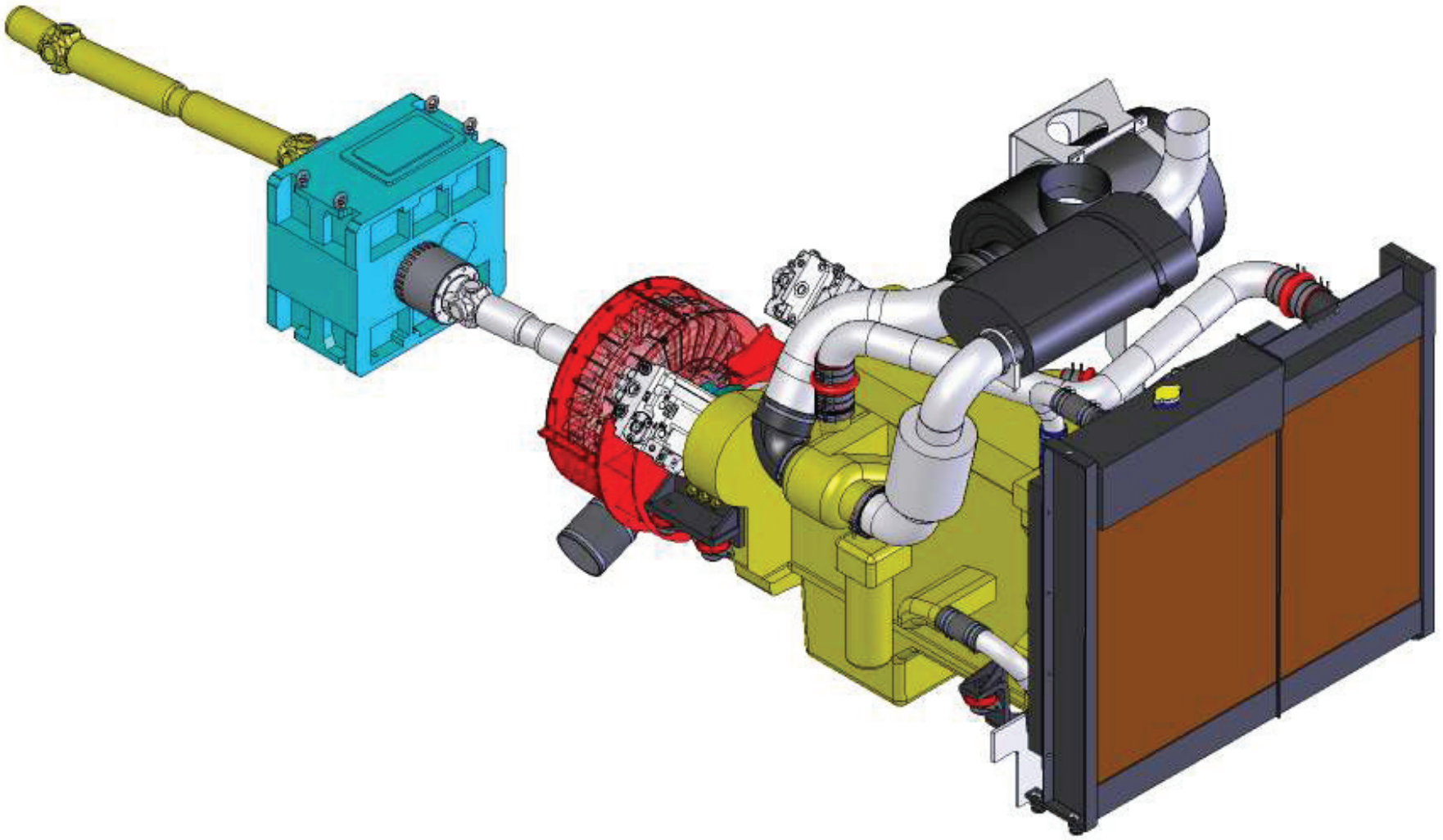
900 MM Track

Group # Group Name
44-168-6984 900MM Track Group



ITEM NO.	PART NO.	DESCRIPTION	QTY
1	44-179-0696	TRACK LINK ASM	1
2	44-168-6983	TRACK SHOE	48
3	44-6Y-0846	TRACK BOLT	192
4	44-9W-3361	TRACK NUT	192

FTX-440 Engine / Driveline



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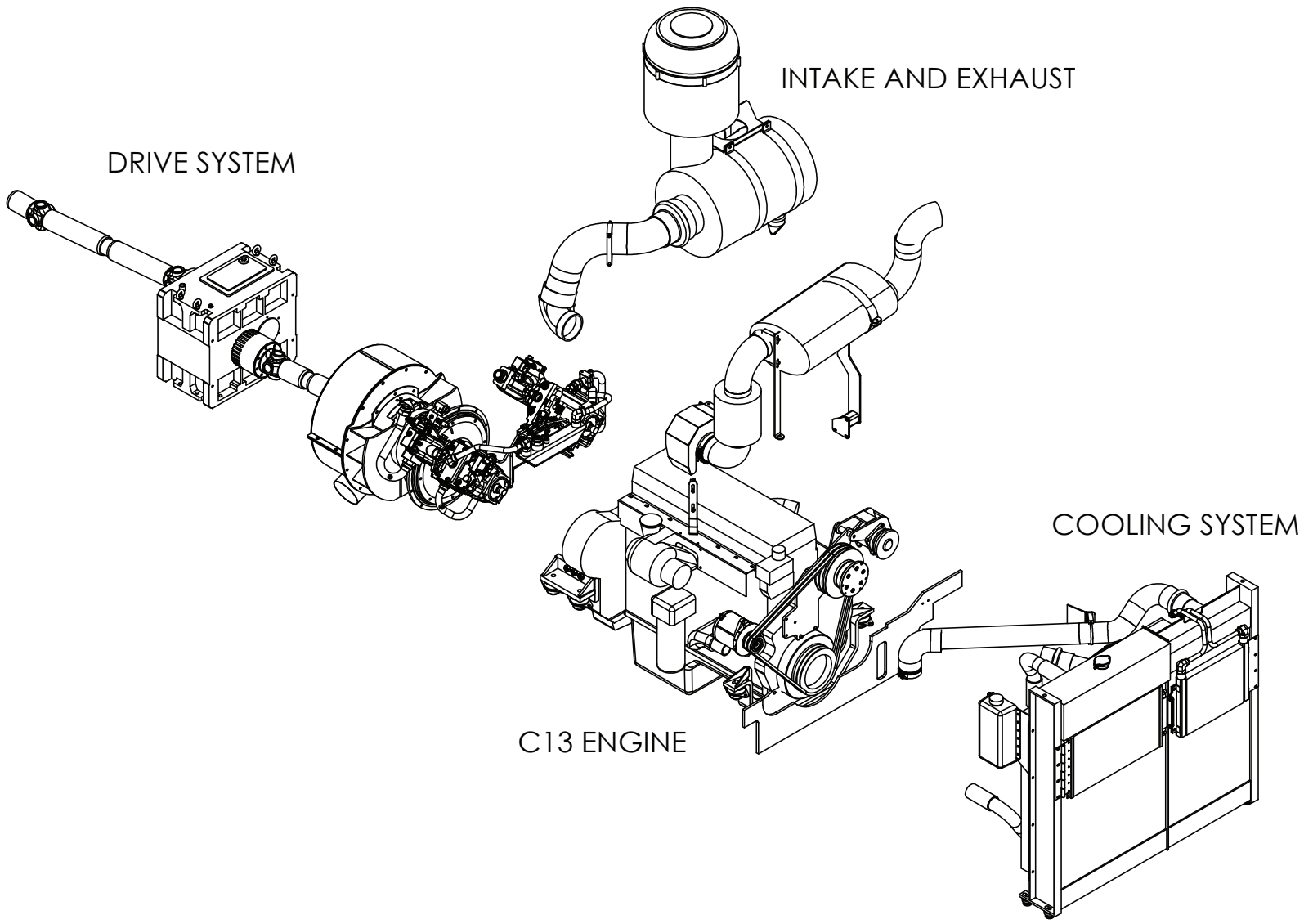
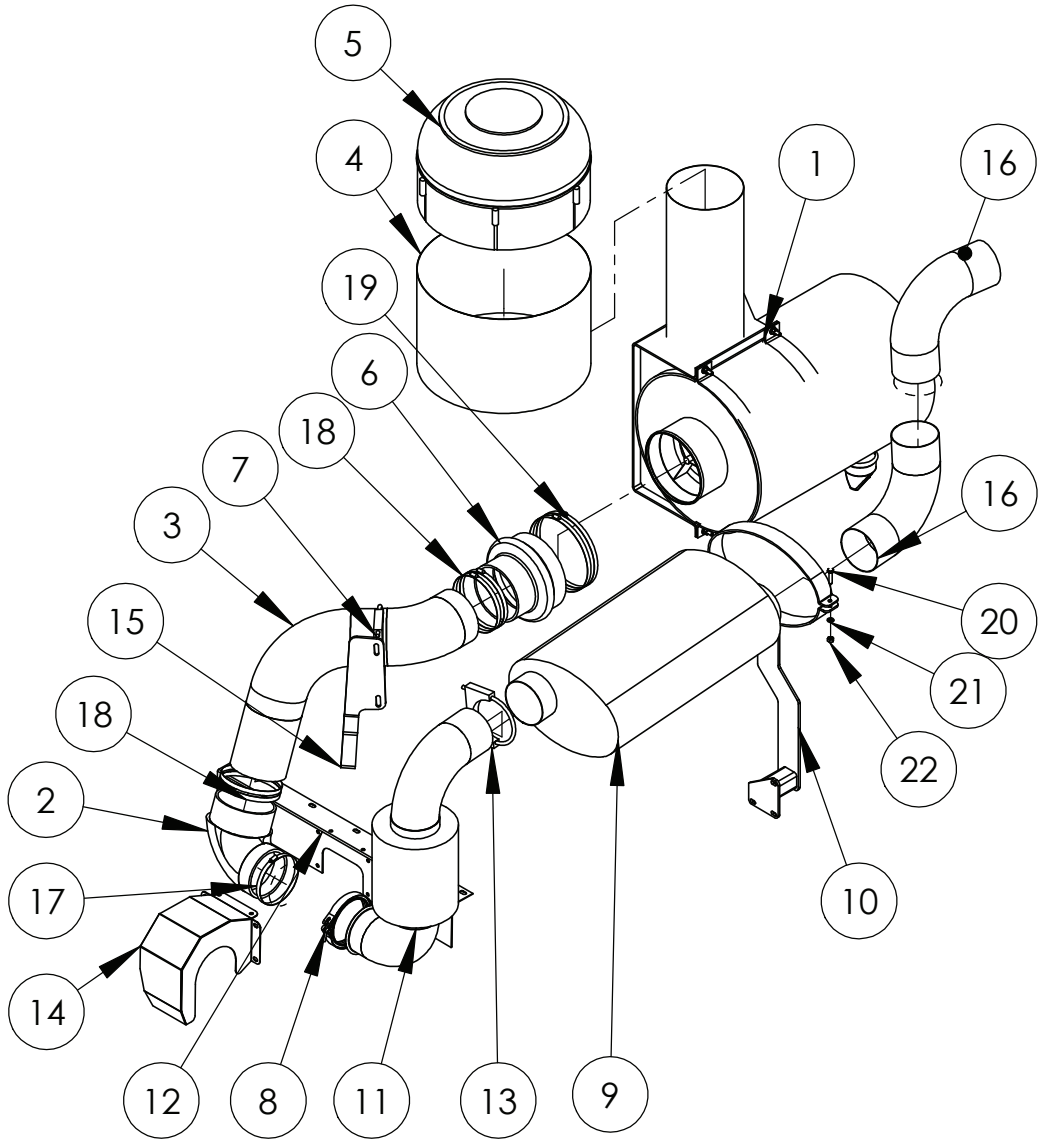
ENGINE SYSTEMS FTX-440



FTX-440 INTAKE / EXHAUST PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	43560-01	AIR CLEANER ASM, FTX 440	1
2	184103	ELBOW RUBBER REDUCING 6X5	1
3	43558-07A	AIR INTAKE PIPE WELD	1
4	440-56-002	SCREEN ASM-PERFORATED 8 IN	1
5	440-56-003	PRE-CLEANER ASM-AIR 8 IN.	1
6	51055	RUBBER HUMP HOSE 8 X 6 REDUCER	1
7	75164	CLAMP EXHAUST, 6" DBL	1
8	44-4W-9160	CLAMP, TURBO EXGAUST OUTLET	1
9	440-56-006	Muffler, style 2, 5" in-out	1
10	43573-02	MUFFLER MOUNT WELD, RUN 2	1
11	43558-03-2	EXH. PIPE-RESONATOR, RUN2	1
12	43556-65A	MANIFOLD COVER	1
13	184008	CLAMP EXHAUST, 5" DBL	1
14	43558-65	TURBO COVER WELD	1
15	43556-49	SUPPORT BRKT, AIR INTAKE	1
16	75167	ELBOW 5-90 L512NE	2
17	440-56-053	CLAMP, HOSE 5.06-6	1
18	440-56-054	WORM GEAR CLAMP SAE104 6-1/16-7"	4
19	440-56-055	WORM GEAR CLAMP SAE140 6 7/16-9 1/4	2
20	B06-1606-8	3/8-16NC x 1 1/2" L gr 8 HHCS	1
21	W06L	3/8" Lockwasher	1
22	N06-16-8	3/8-16NC Hex Nut gr 8	1

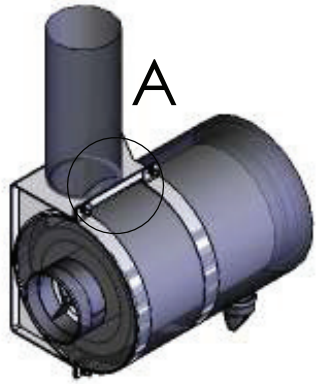
*NOTE- ITEM 11 CONSISTS OF:
75167, 43558-09 AND 44-155-8538

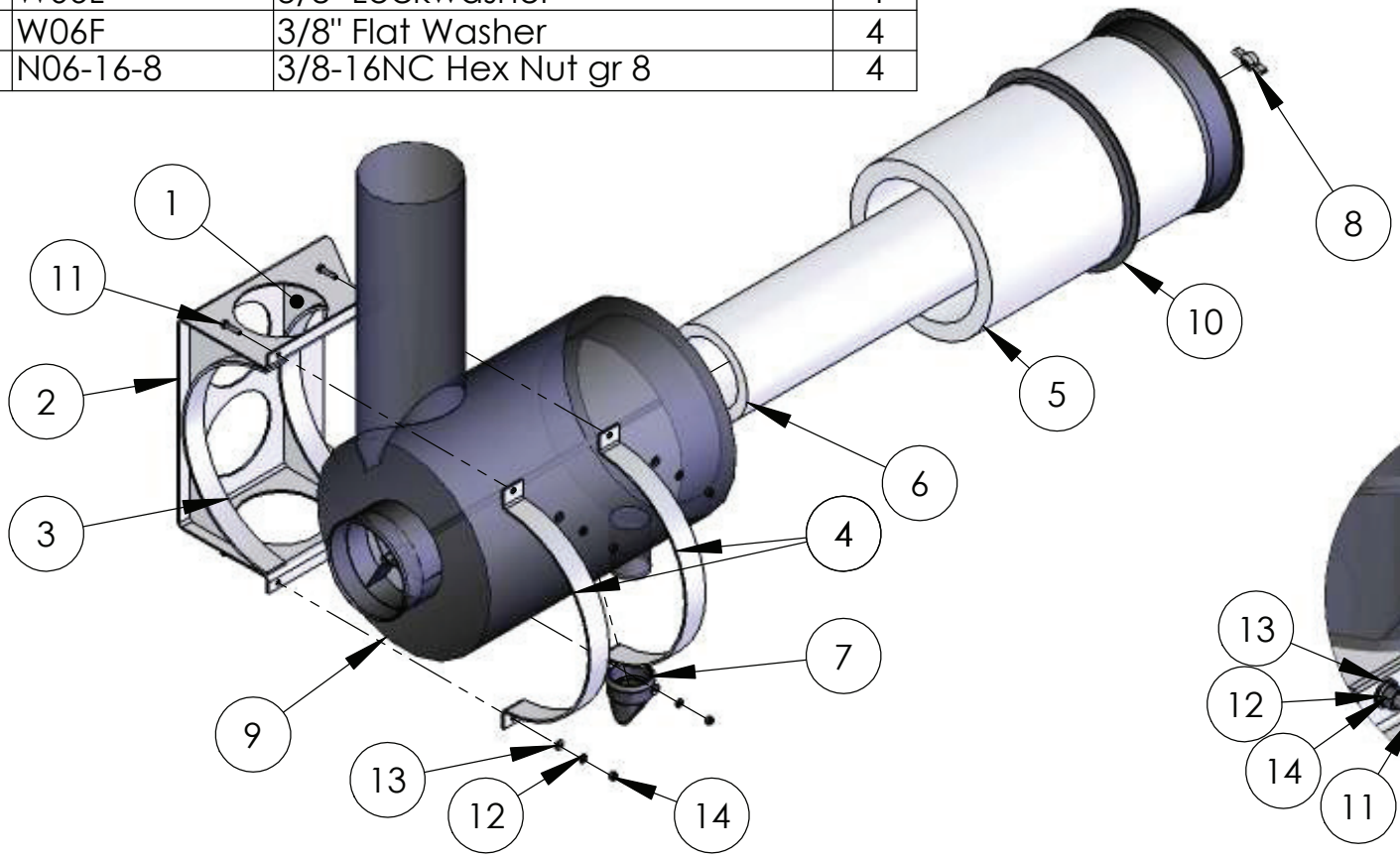


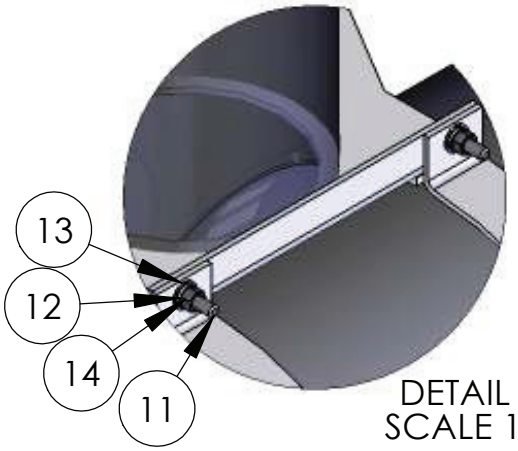
AIR CLEANER ASM, FTX 440

FECON ASSEMBLY 43560-01

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	43556-02	AIR CLEANER CRADLE STIFFENER	2
2	43556-03	AIR CLEANER MOUNT BASE	1
3	43557-01	AIR CLEANER HOLD-DOWN RING	2
4	43557-05	AIR CLEANER HOLD-DOWN RING	2
5	51044-01x	FILTER ELEMENT, PRIMARY	1
6	51044-02	FILTER, SECOND. ELEMENT	1
7	51044-03	DUST RELEASE, AIR CLEANER	1
8	51044-04	WING NUT, 440 FILTER ASM	1
9	440-56-004	AIR CLEANER HOUSING	1
10	P105740	GASKET, PRIMARY AIR CLEANER	1
11	B06-1606-8	3/8-16NC x 1 1/2" L gr 8 HHCS	4
12	W06L	3/8" Lockwasher	4
13	W06F	3/8" Flat Washer	4
14	N06-16-8	3/8-16NC Hex Nut gr 8	4





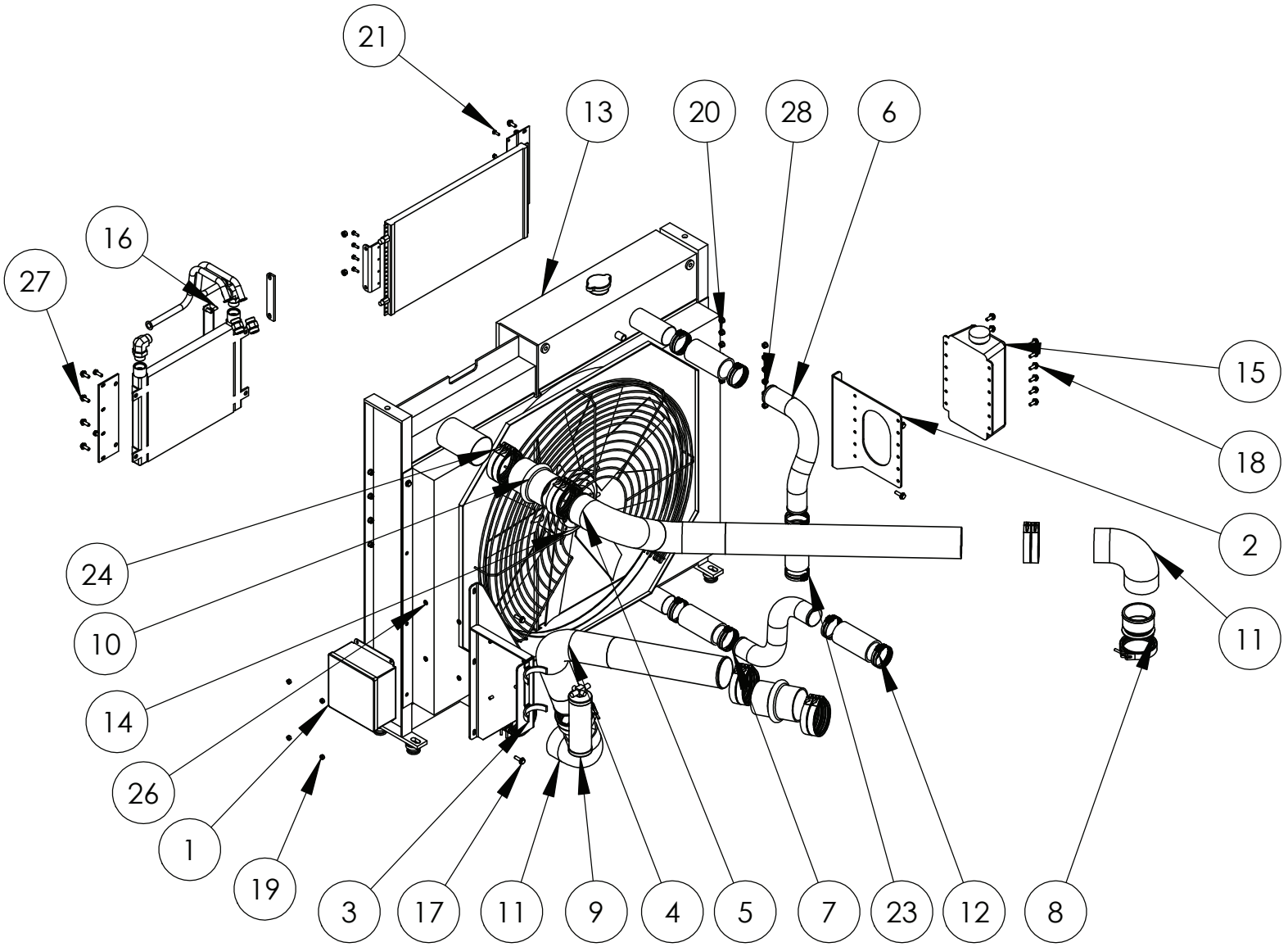


DETAIL A
SCALE 1 : 5

Rev D 1-3-07

C13 RADIATOR ASSEMBLY

WITH CONECTION PARTS

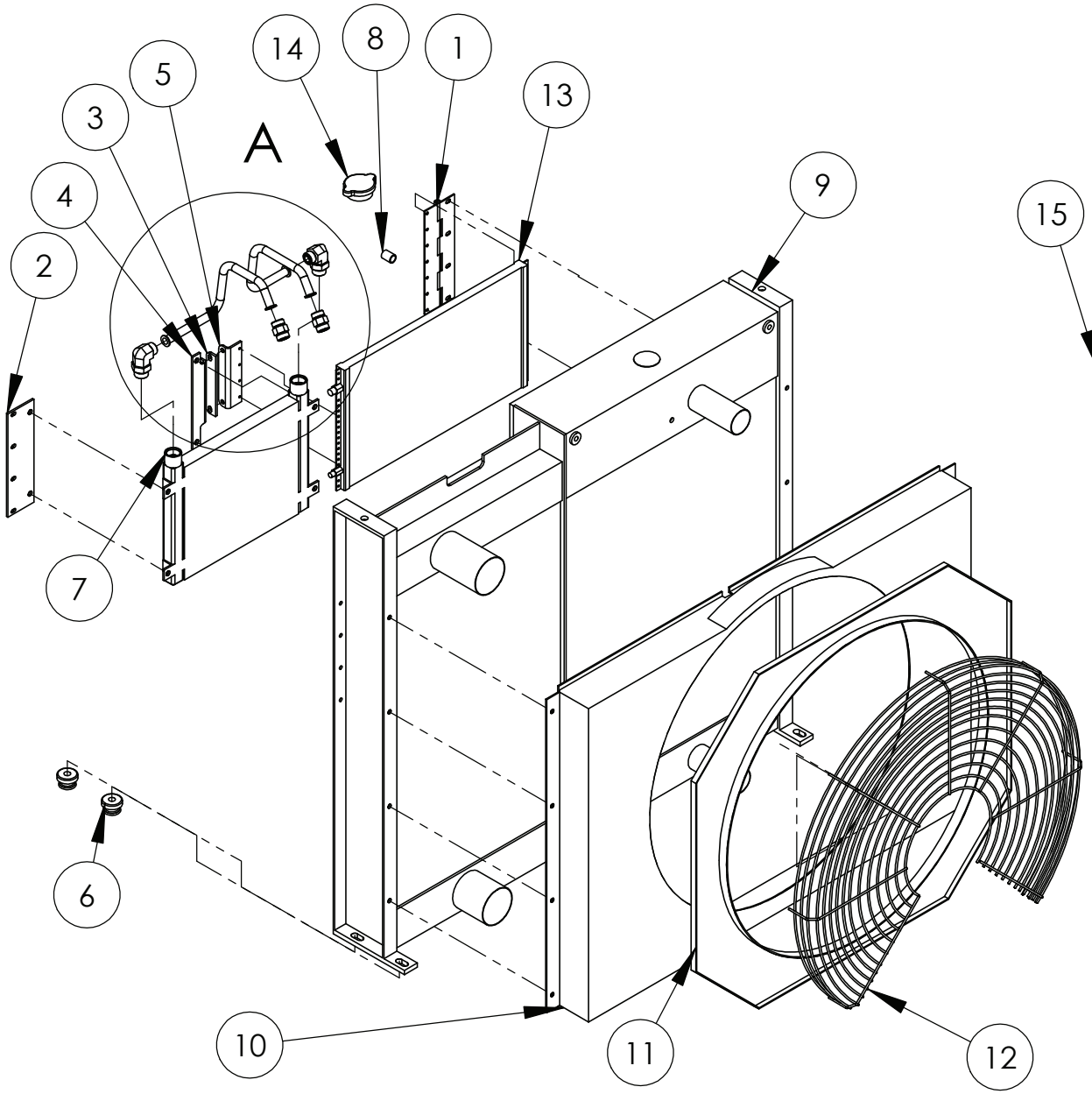


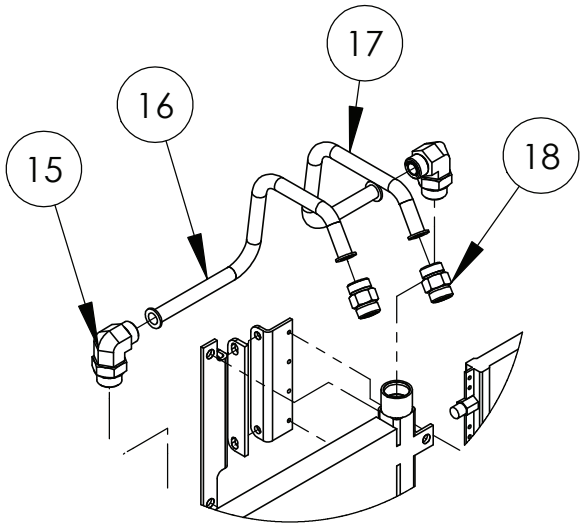
C13 RADIATOR PARTS

WITH CONNECTION PARTS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	42010-02	FAN CONTROL BOX	1
2	43511-42	MOUNT COOLANT OVERFLOW TANK	1
3	43513-45	MOUNT WELD, FAN CONTR.	1
4	43558-06	C.A. RETURN PIPE	1
5	43558-13	CHARGE AIR SUPPPLY PIPE R2	1
6	43568-21	UPPER COOLANT PIPE	1
7	43568-22	COOLANT RETURN PIPE	1
8	44-129-6400	ADAPTER, TURBO OUTLET	1
9	440-46-008	RECEIVER DRIER	1
10	440-56-031	HUMP HOSE 4 IN CHARGE AIR	2
11	440-56-032	ELBOW 2.5 RADIATOR HOSE	2
12	440-56-033	RADIATOR HOSE 2-1/2 X 6	4
13	440-57-001	RADIATOR C-13 ENGINE WATER	1
14	440-57-041	FAN REVERSING C-13 CAT 34" VP SER	1
15	CE1029223	OVERFLOW TANK	1
16	B06-1606-8	3/8-16NC x 1 1/2" L gr 8 HHCS	2
17	B06-1605-8	3/8-16NC x 1 1/4" L gr 8 HHCS	8
18	B06-1604-8	3/8-16NC x 1" L gr 8 HHCS	24
19	N05-18-8	5/16-18NC Hex Nut gr 8	4
20	N06-16-8	3/8-16NC Hex Nut gr 8	34
21	B04-2003-8	1/4-20 NC x 3/4" L gr 8	8
22	N04-20-8	1/4-18NC Hex Nut gr 8	8
23	HARHS48	#48 Hose Clamp	16
24	V CLAMP	CLAMP	15
25	W04L	1/4" Lockwasher	8
26	W05L	1/4" LOCKWASHER	4
27	W06F	3/8" Flat Washer	32
28	W06L	3/8" Lockwasher	34

MESABI RADIATOR ASM

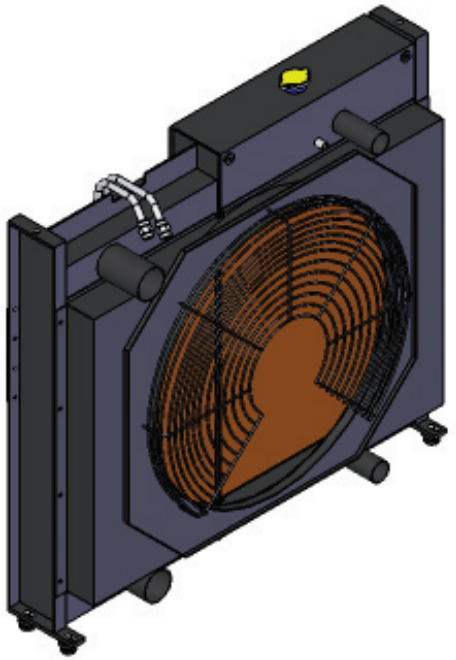




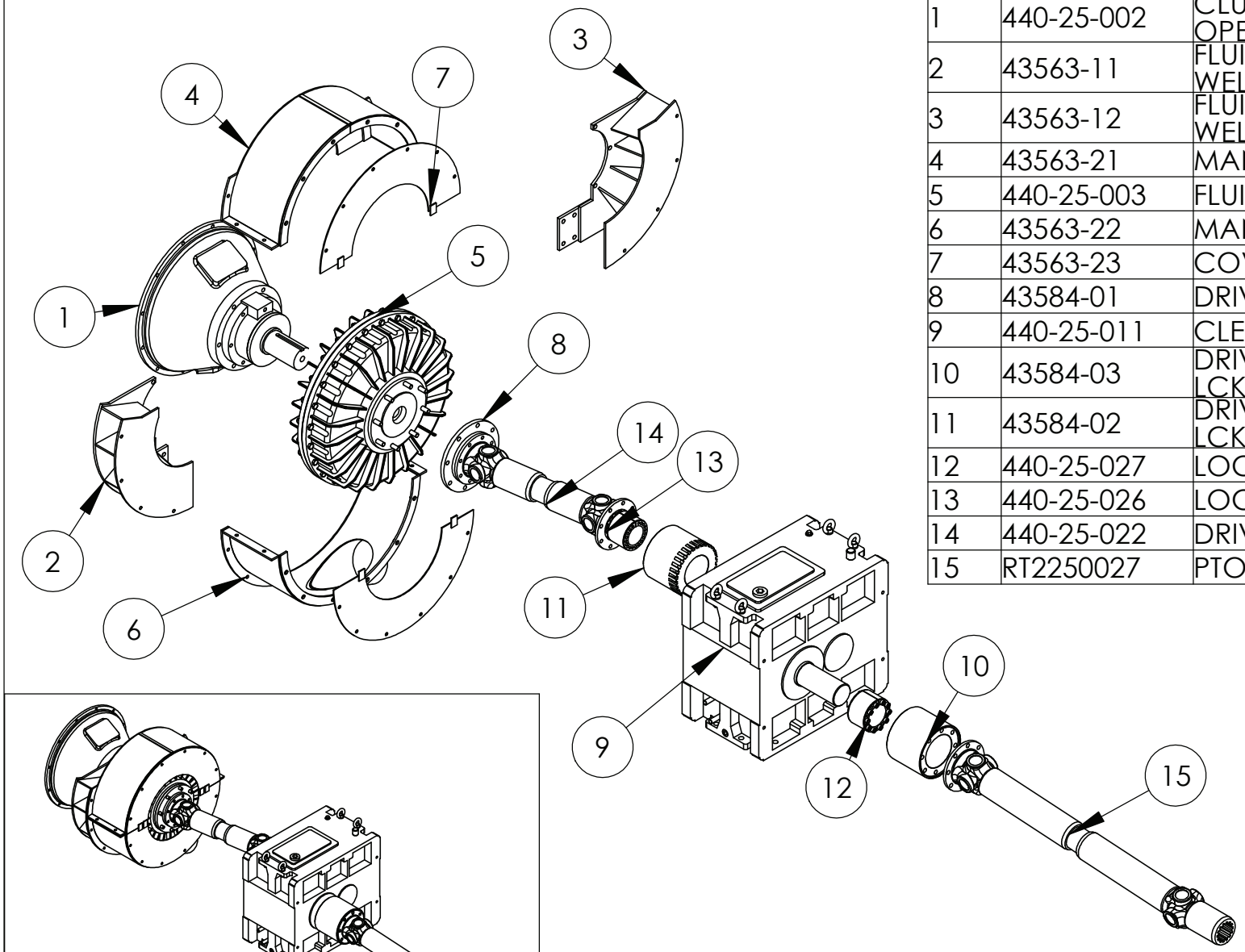
DETAIL A
SCALE 1 : 10

RADIATOR ASM PARTS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	43581-01	HINGE, AC CONDENSOR	1
2	43581-13	GB COOLER MT PLT	1
4	43581-15	MOUNT GB COOLER INNER	1
5	43581-16	MOUNT AC COIL	1
6	75130	SHOCK MOUNT CTR BUSHING	4
7	80127	COOLER HYD THERMAL M-20-S	1
8	160156	COUPLING 1/4" PIPE STD BLK CS	1
9	44-213604.00	RADIATOR-AFT. COOLER ASM	1
10	44-213700.00	FAN SHROUD	1
11	44-213721.00	FAN RING	1
12	44-213892.00	FAN GUARD	1
13	440-46-006	CONDENSOR COIL	1
14	660-21-138	RADIATOR CAP (WINDHOFF RAD)	1
15	HFTA3405-12-16	#12 FASEAL TO #16 ORING 90 EL	2
16	440-61-035	TUBE GB COOLER INLET	1
17	440-61-034	TUBE GB COOLER OUTLET	1
18	HFT3305-12	#12 FACE SEAL UNION ADAPTER	2



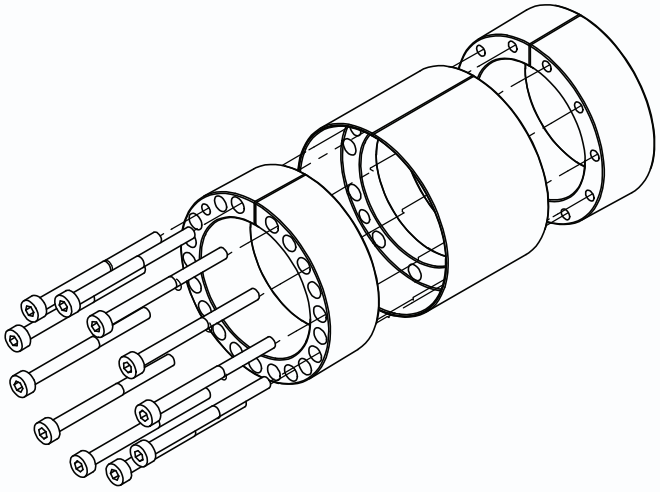
FTX-440 DRIVE LINE



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	440-25-002	CLUTCH, HYDR. OPERATED	1
2	43563-11	FLUID CPLG MANTEL MT WELD R	1
3	43563-12	FLUID CPLG MANTEL MT WELD L	1
4	43563-21	MANTLE TOP	1
5	440-25-003	FLUID COUPLING 21KR	1
6	43563-22	MANTLE BOTTOM	1
7	43563-23	COVER PLATE WELD	2
8	43584-01	DRIVE SHAFT MTG PLG	1
9	440-25-011	CLEVELAND GEAR PB 16	1
10	43584-03	DRIVE HUB FOR 80 X 120 LCKG RING	1
11	43584-02	DRIVE HUB FOR 70 X 110 LCKG RING	1
12	440-25-027	LOCKING ASM 80X120	1
13	440-25-026	LOCKING ASM 70X110	1
14	440-25-022	DRIVE SHAFT, 5200Nm	1
15	RT2250027	PTO SHAFT	1

MOUNTING POWER LOCK HUB

NOTE: DO NOT USE OIL OR GREASE CONTAINING MOLYBDENUM DISULPHIDE.



1 CLEAN AND LIGHTLY OIL THE SHAFT AND THE HUB BORE.

2 REMOVE BOLTS, CLEAN AND LIGHTLY OIL ALL SURFACES INCLUDING BOLTS.

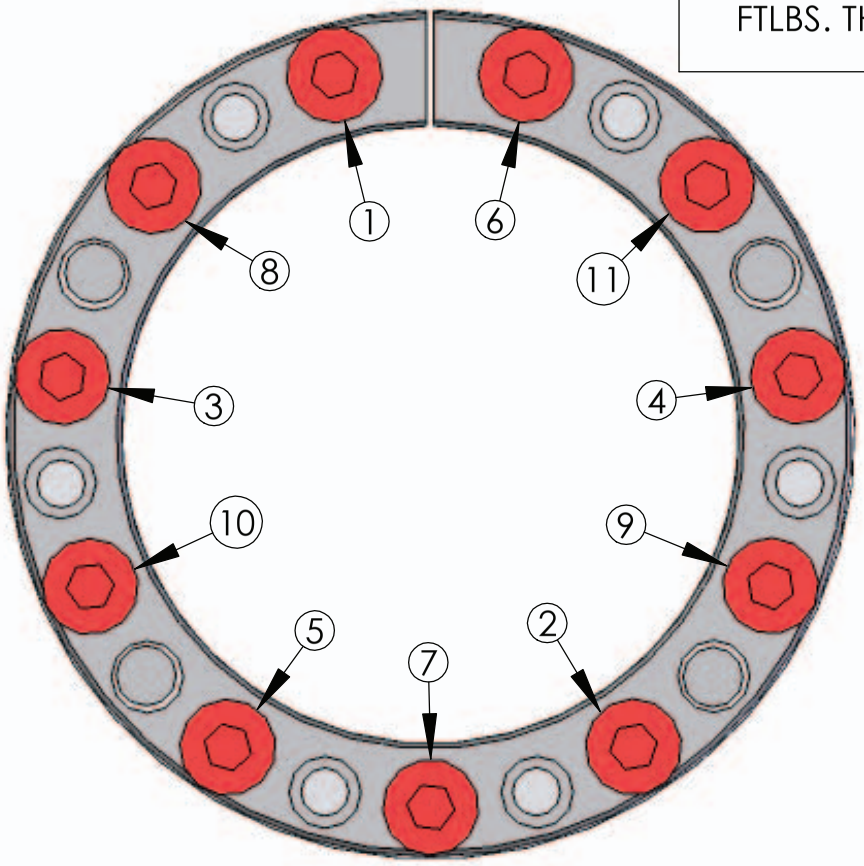
3 SLIP HUB ONTO SHAFTAND TIGHTEN THE BOLTS BY HAND UNTILLIGHT CONTACT IS FELT.

4 SET THE POSITION BETWEEN THE HUB AND SHAFT. TIGHTEN BOLTS 1 THROUGH 11 IN ORDER (SEE FIGURE 1) TO 13 FTLBS. REPEAT PROCESS LEAVING TORQUE AT 13 FTLBS.

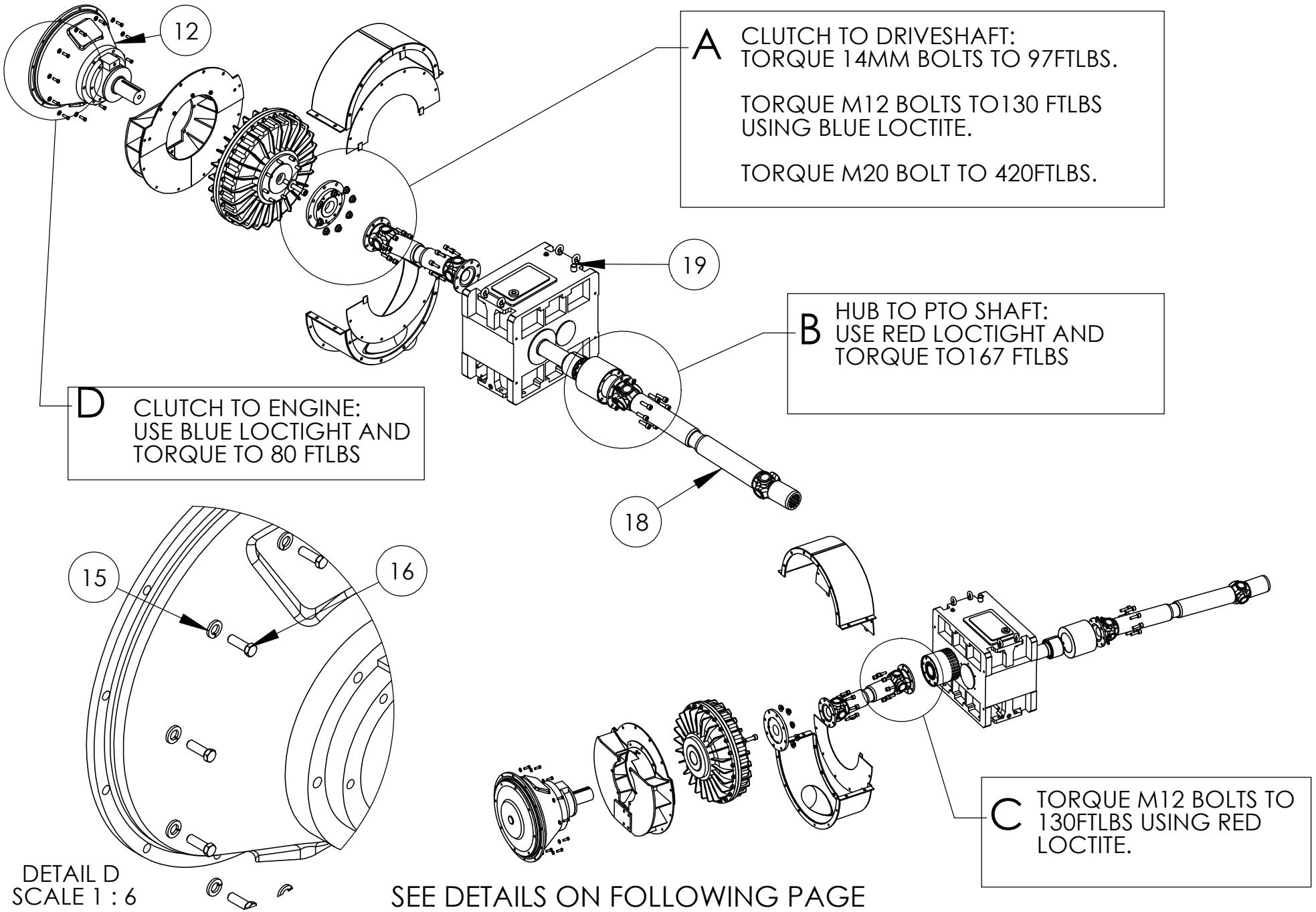
5 TIGHTEN BOLTS 1 THROUGH 11 IN ORDER (SEE FIGURE 1) TO 26 FTLBS.REPEAT PROCESSLEAVING TORQUE AT 26 FTLBS.

6 TIGHTEN BOLTS 1 THROUGH 11 IN ORDER (SEE FIGURE 1) TO 39 FTLBS.REPEAT PROCESS LEAVING TORQUE AT 39 FTLBS.

7 TIGHTEN BOLTS 1 THROUGH 11 IN ORDER (SEE FIGURE 1) TO 50.5 FTLBS.REPEAT PROCESS LEAVING TORQUE AT 50.5 FTLBS. THIS IS THE FINAL TORQUE SETTING.



DRIVELINE ASSEMBLY INSTRUCTIONS



A CLUTCH TO DRIVESHAFT:
TORQUE 14MM BOLTS TO 97FTLBS.

TORQUE M12 BOLTS TO130 FTLBS USING BLUE LOCTITE.

TORQUE M20 BOLT TO 420FTLBS.

B HUB TO PTO SHAFT:
USE RED LOCTIGHT AND TORQUE TO167 FTLBS

C TORQUE M12 BOLTS TO 130FTLBS USING RED LOCTITE.

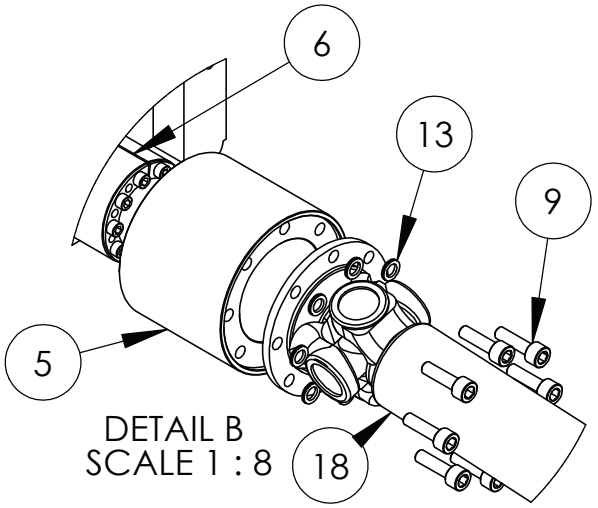
D CLUTCH TO ENGINE:
USE BLUE LOCTIGHT AND TORQUE TO 80 FTLBS

DETAIL D
SCALE 1 : 6

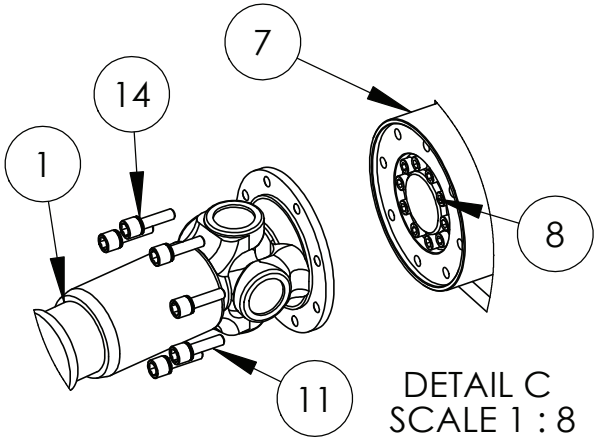
SEE DETAILS ON FOLLOWING PAGE

DRIVELINE ASSEMBLY INSTRUCTIONS

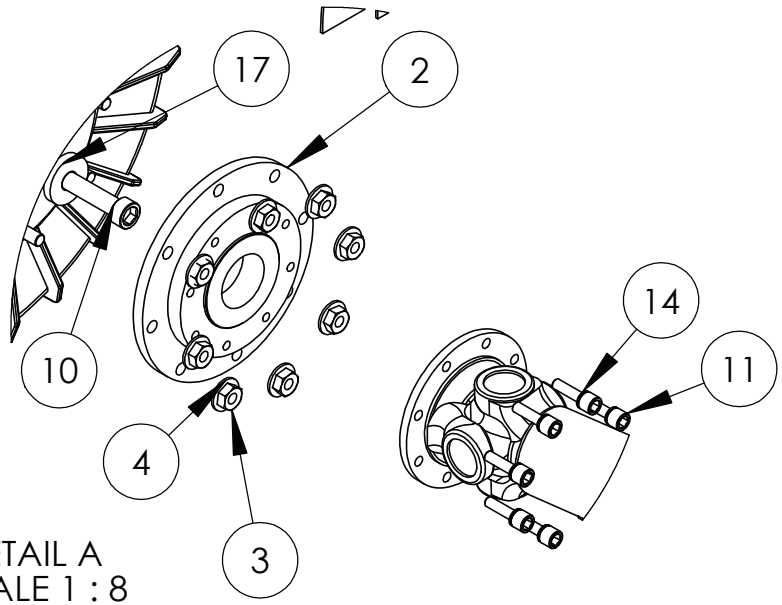
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	440-25-022	DRIVE SHAFT, 5200Nm	1
2	43584-01A	DRIVE SHAFT MTG PLT	1
3	N14M-2.0-10	M14-2.0 HEX NUT GR 10.9	8
4	W09F	9/16" Flat Washer	8
5	43584-03	DRIVE HUB FOR 80 X 120 LCKG RING	1
6	440-25-027	LOCKING ASM 80X120	1
7	43584-02A	DRIVE HUB FOR 70 X 110 LCKG RING	1
8	440-25-026	LOCKING ASM 70X110	1
9	B09-1208A-8	9/16-12 UNC x 2" L gr 8 Allen Head	8
10	B20M	M20 NC x 6" L gr 8 Allen Head	1
11	B12M-1207A-8	M12-11NC x 1 3/4" L gr 8 Allen Head	16
12	440-25-002	CLUTCH, HYDR. OPERATED	1
13	W09NL	9/16 NORD LOCK WASHER	8
14	W08NL	1/2 NORD LOCK WASHER	16
15	W07L	7/16" Lockwasher	12
16	B07-1605-8	3/8-16NC x 1 1/4" L gr 8 HHCS	12
17	43511-35	WASHER, FLUID GPLG MT	1
18	RT2250027	PTO SHAFT	1
19	440-25-011	CLEVELAND GEAR PB 16	1



DETAIL B
SCALE 1 : 8

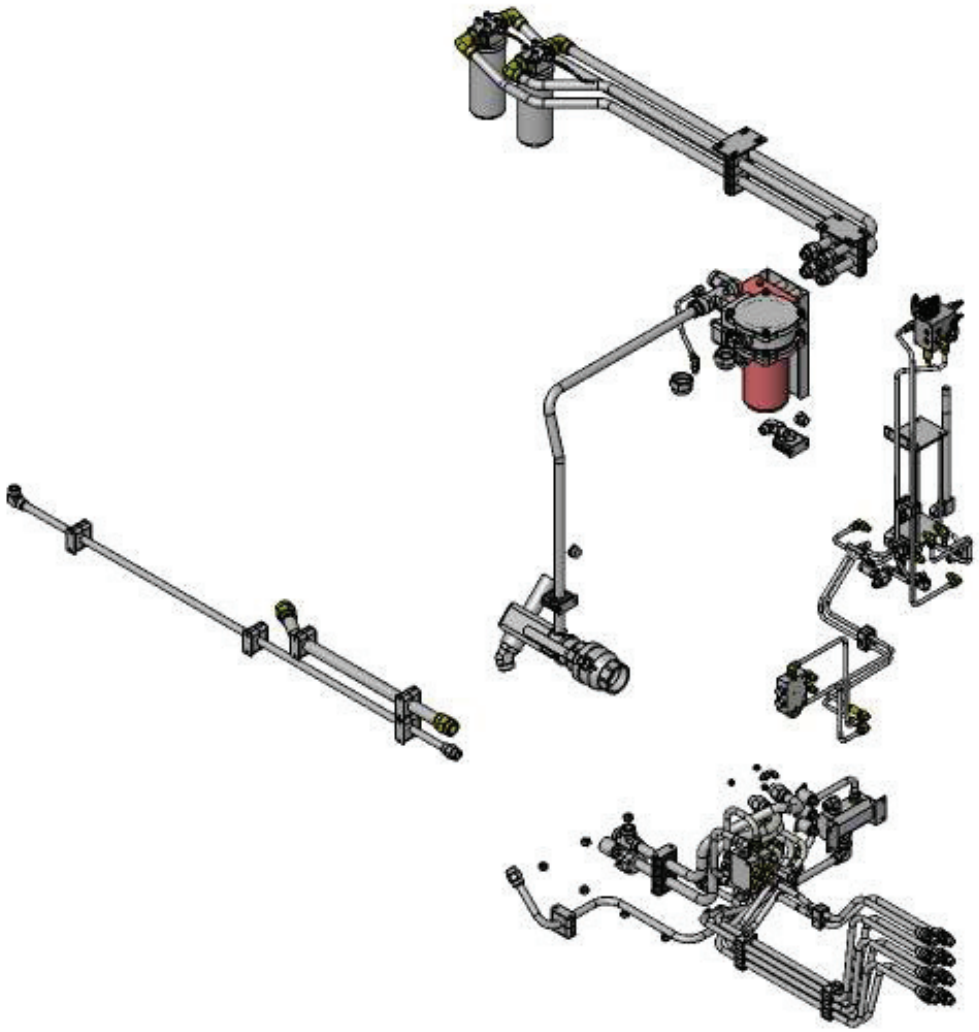


DETAIL C
SCALE 1 : 8

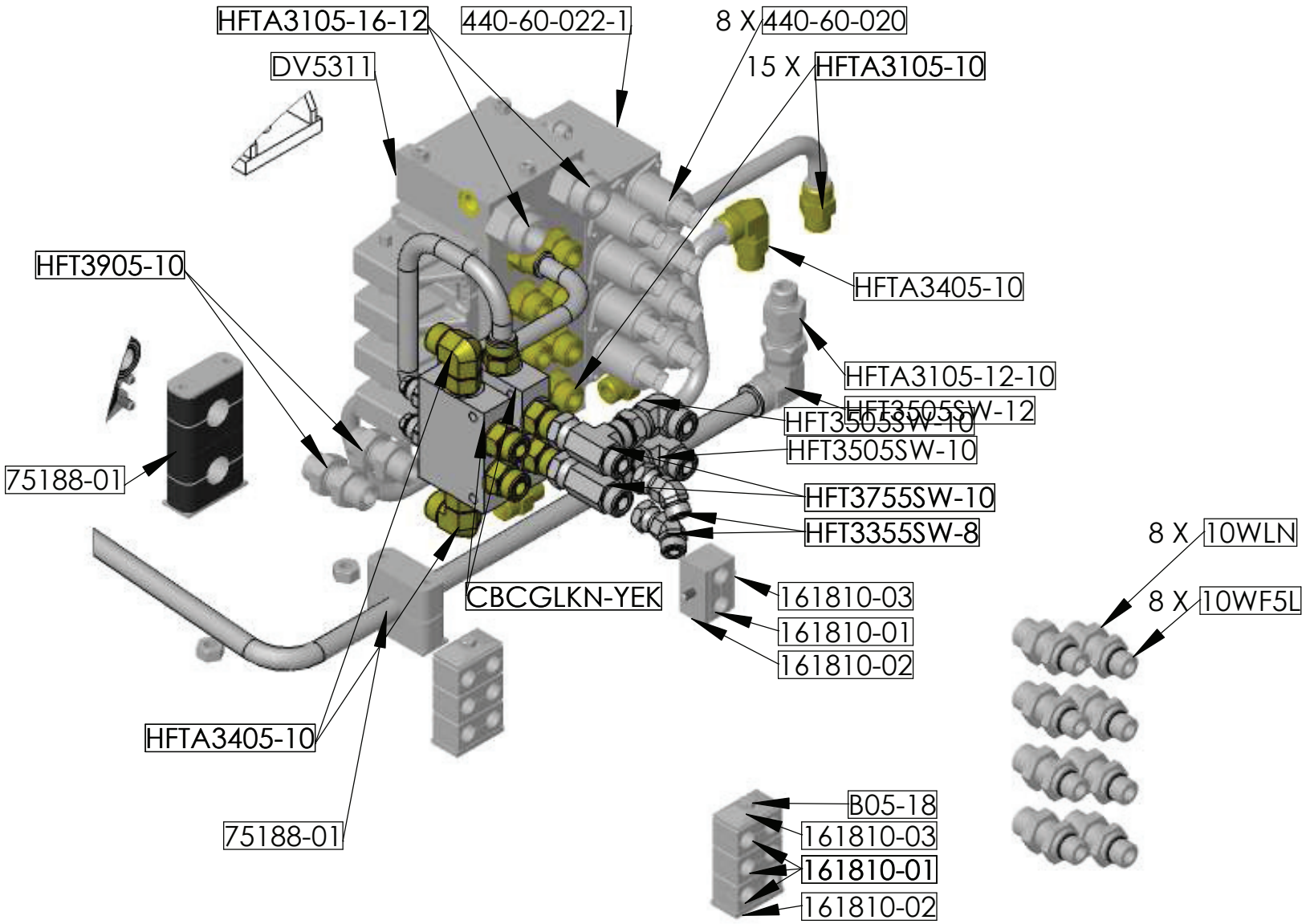


DETAIL A
SCALE 1 : 8

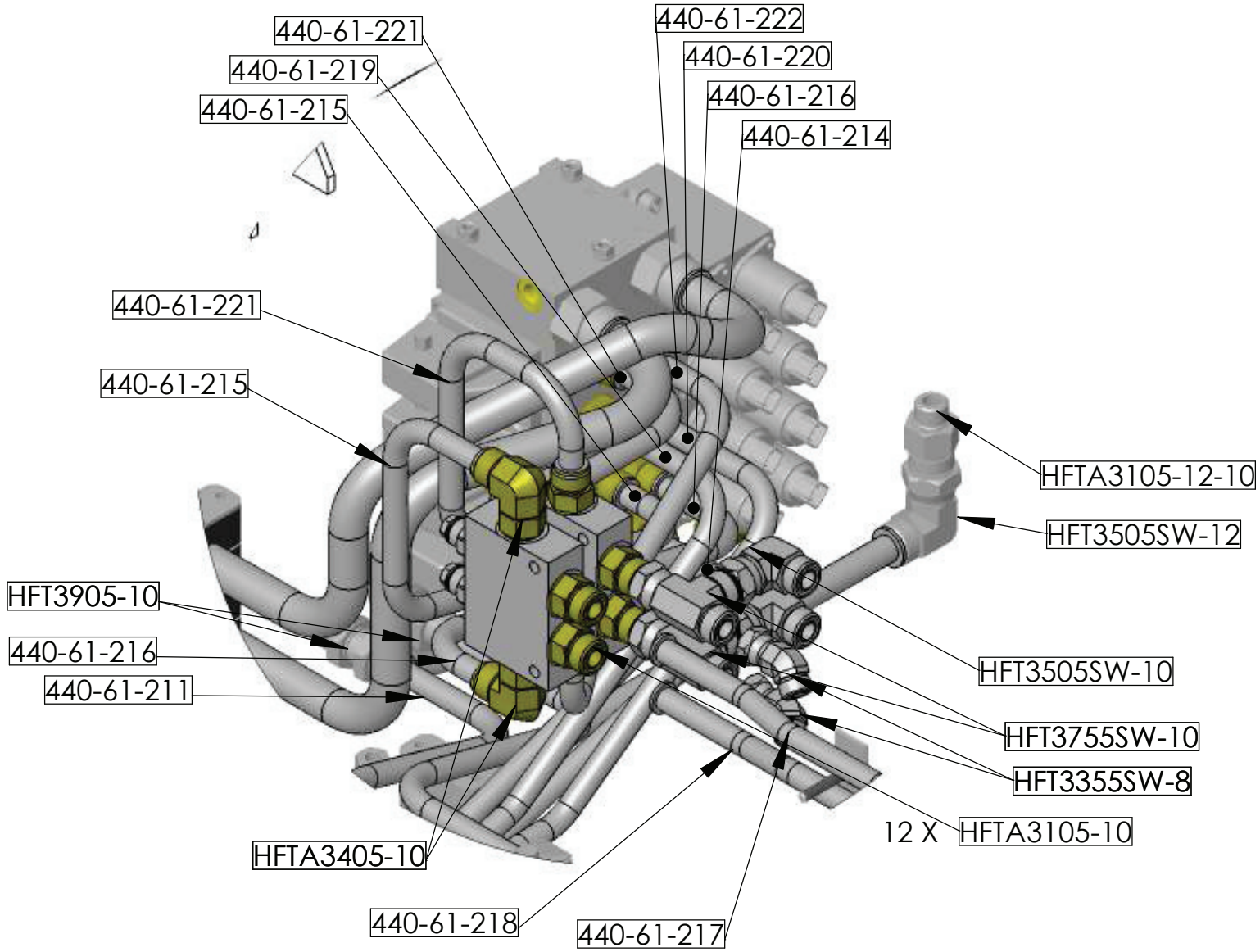
FTX-440 HYDRAULIC PARTS



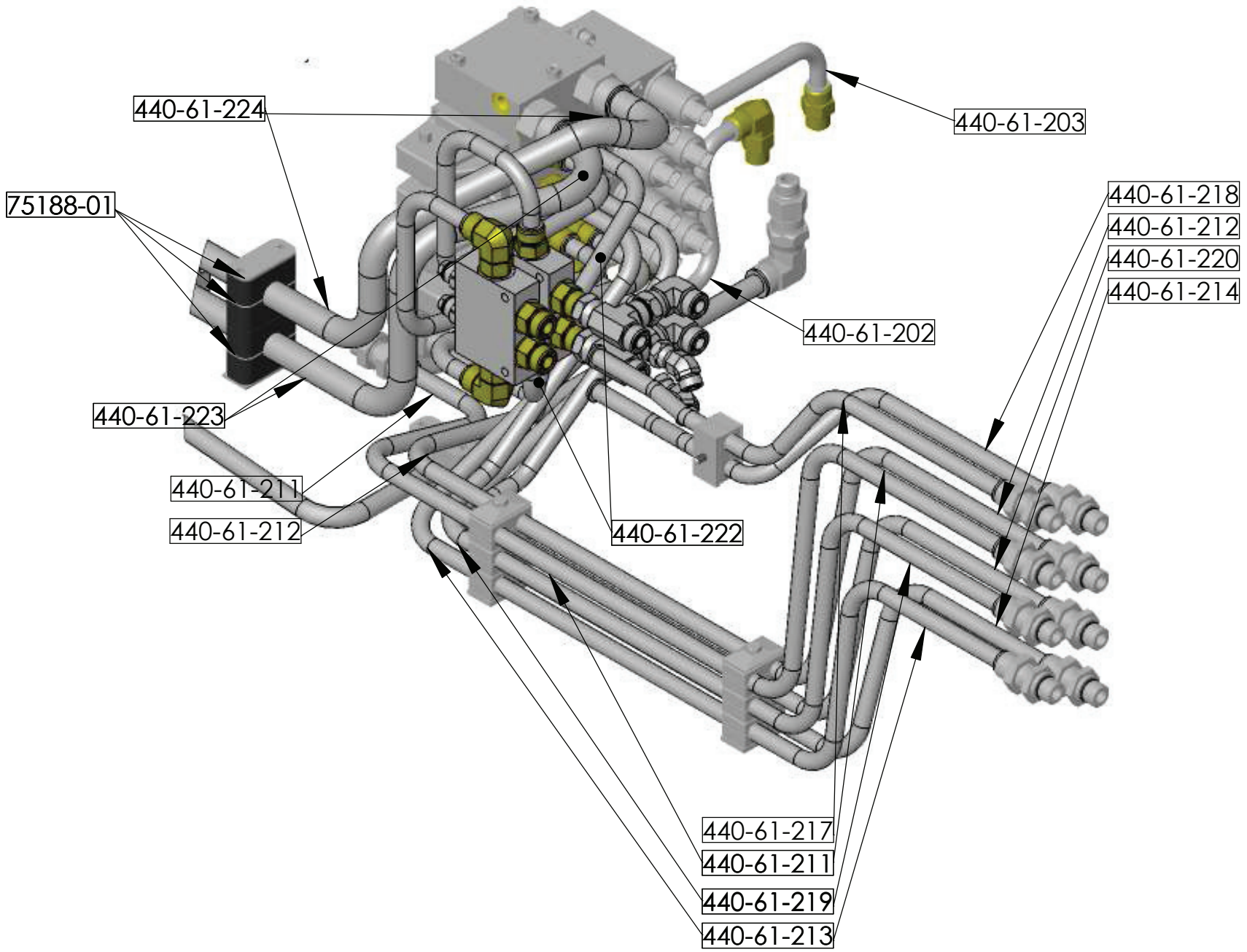
FRONT COMPARTMENT FITTINGS



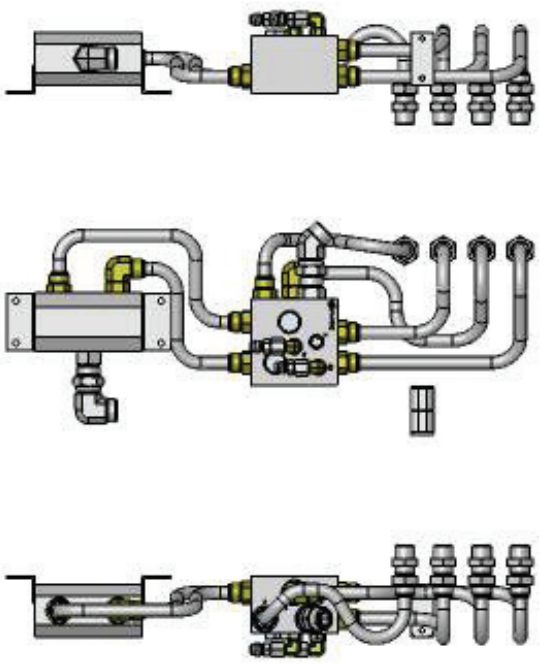
440 FRONT CONNECTIONS

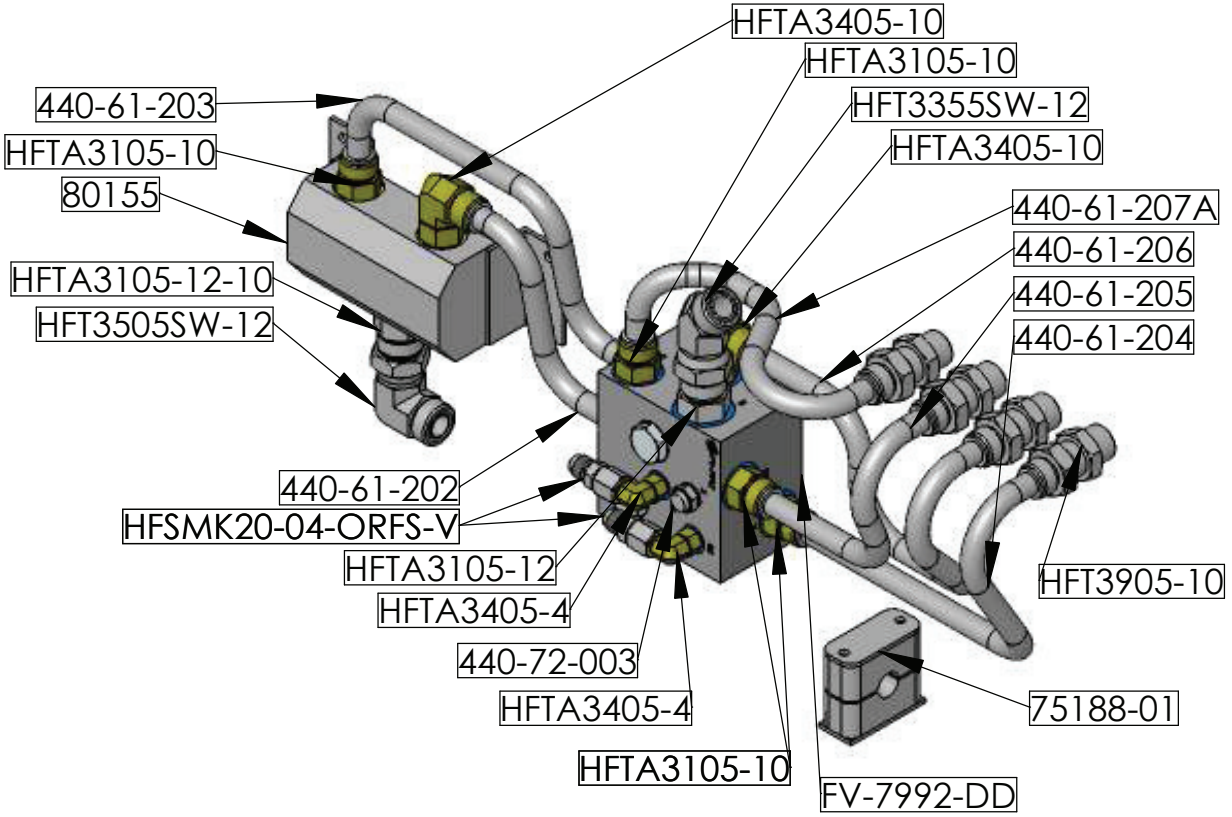


FRONT COMPARTMENT TUBES

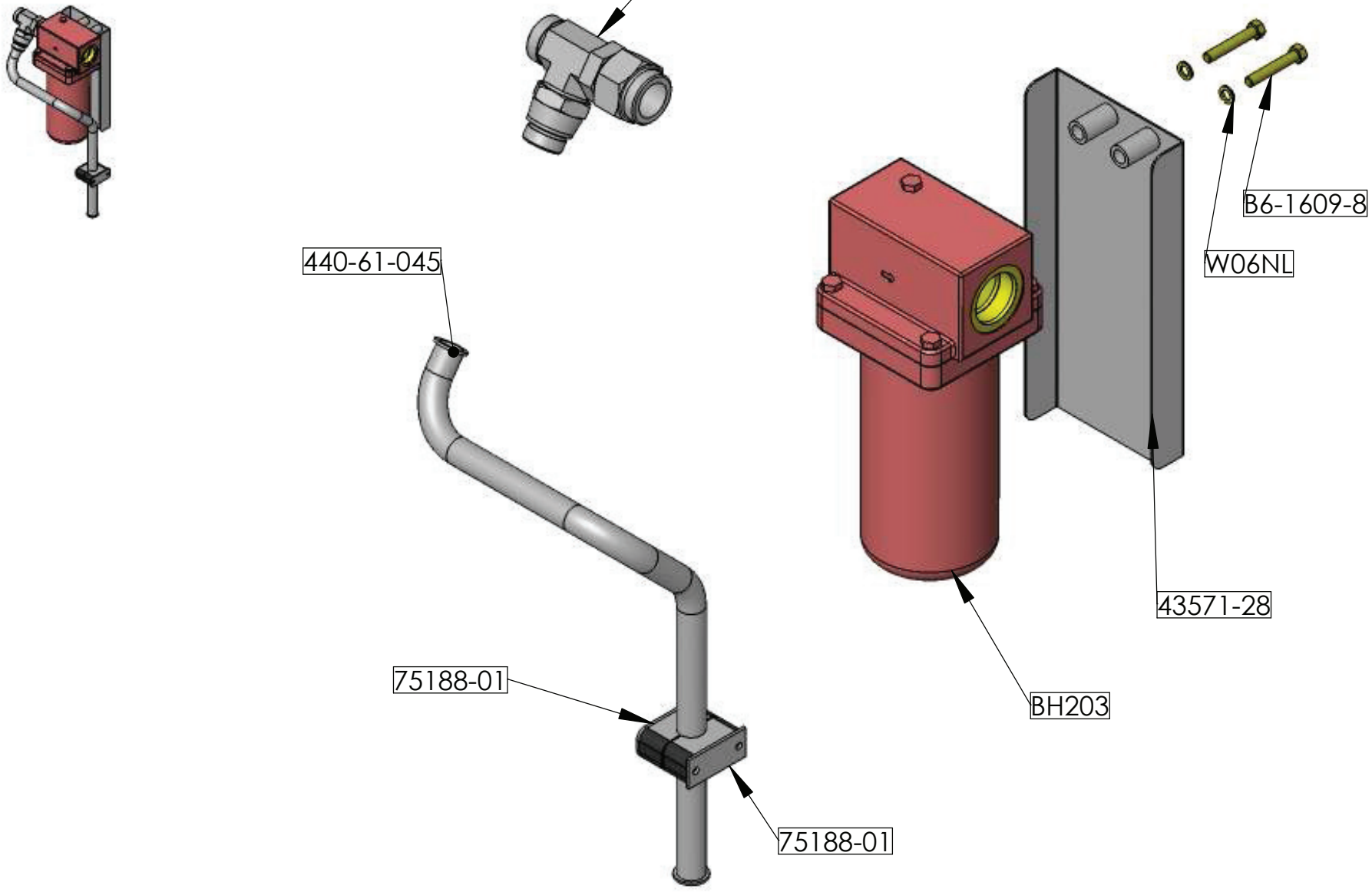


Flow Divider Check Block

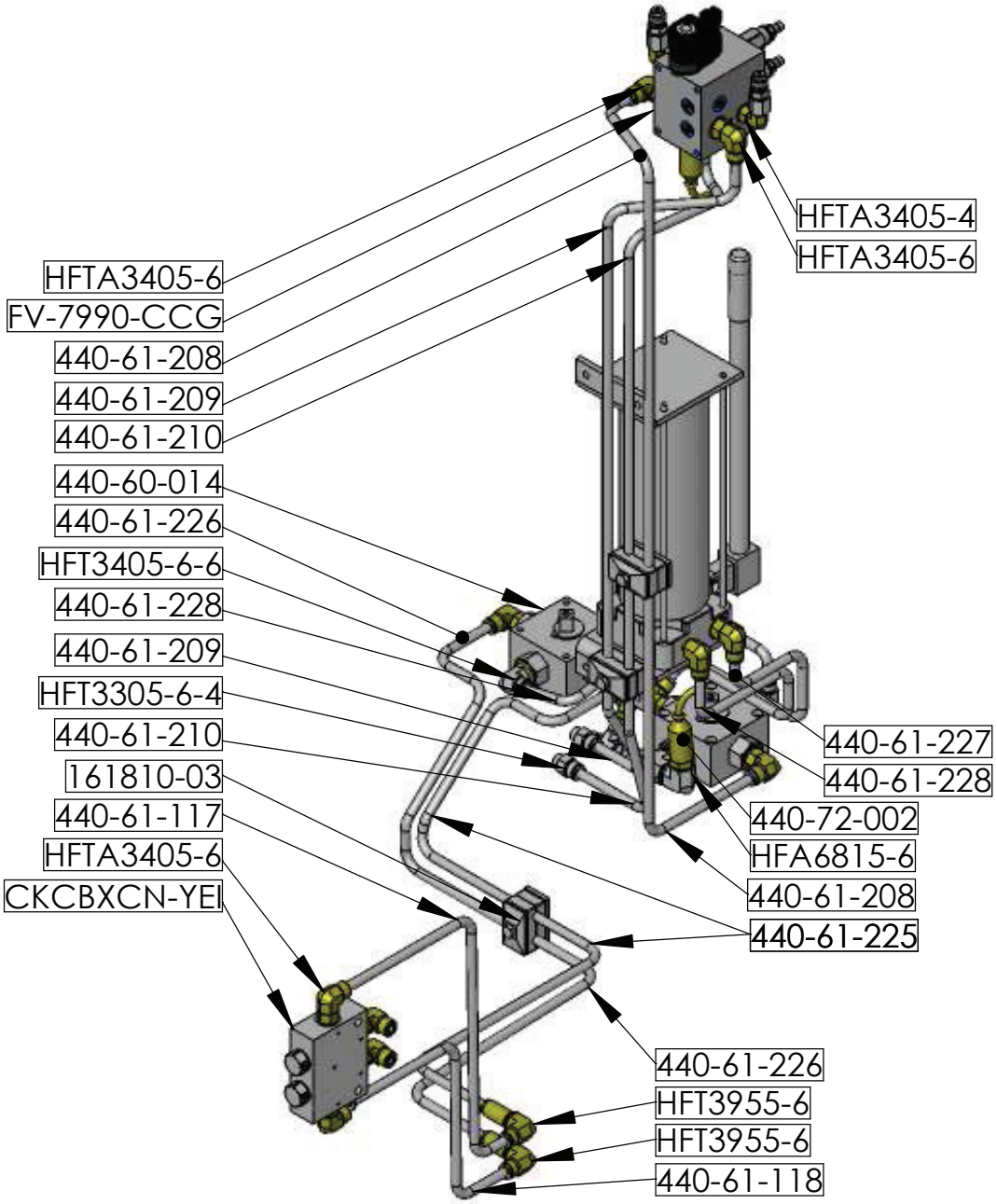




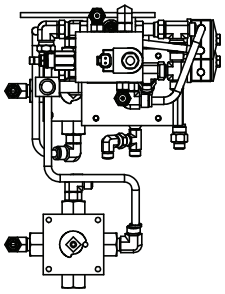
FTX-440 Closed Loop Return Filter Asm

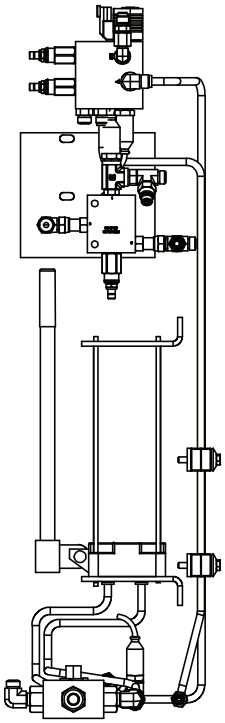


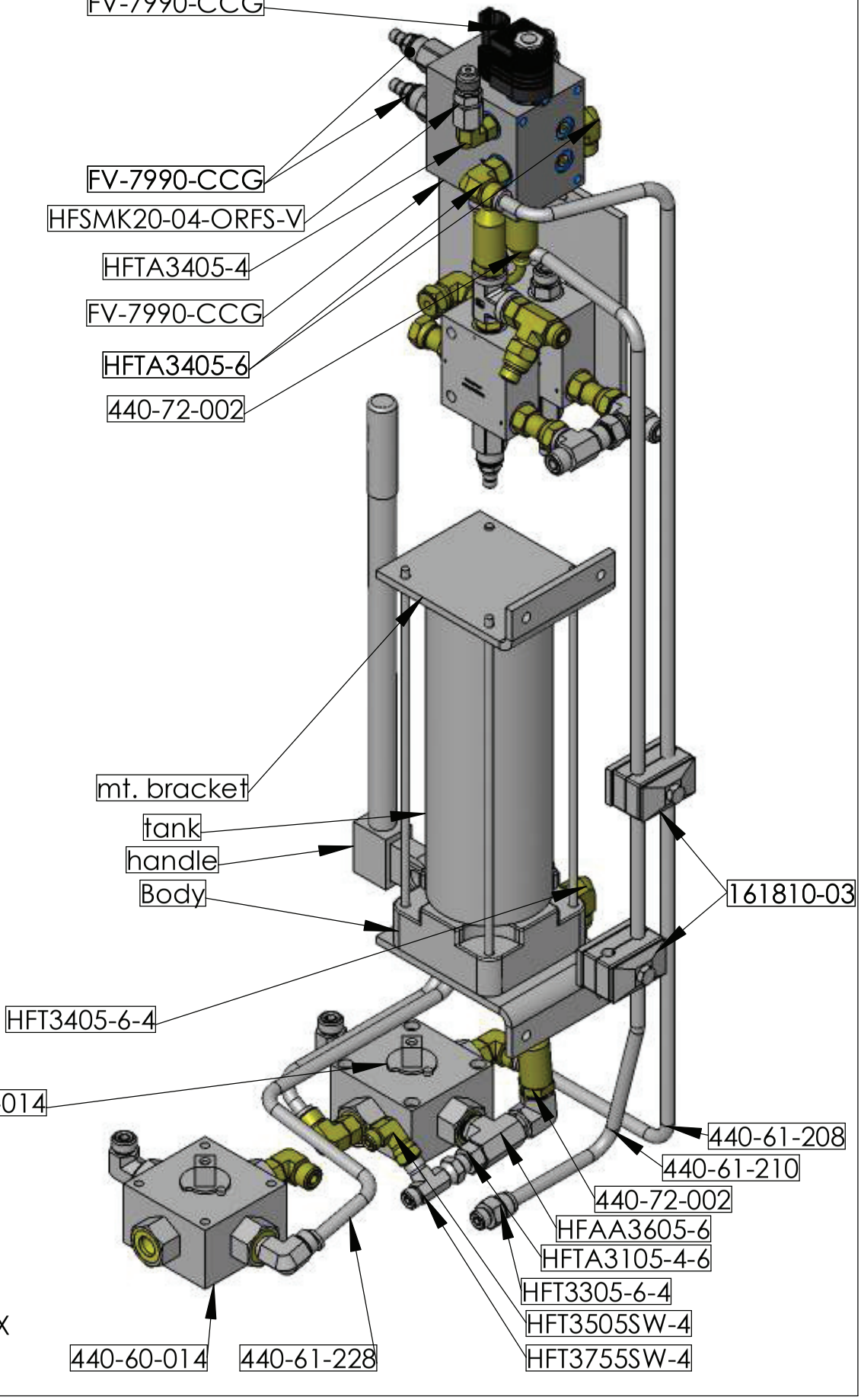
440 AUX VALVE



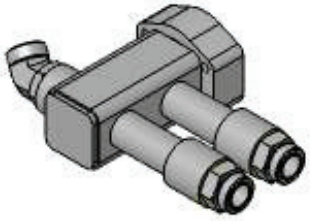
440 AUX VALVE / HANDPUMP

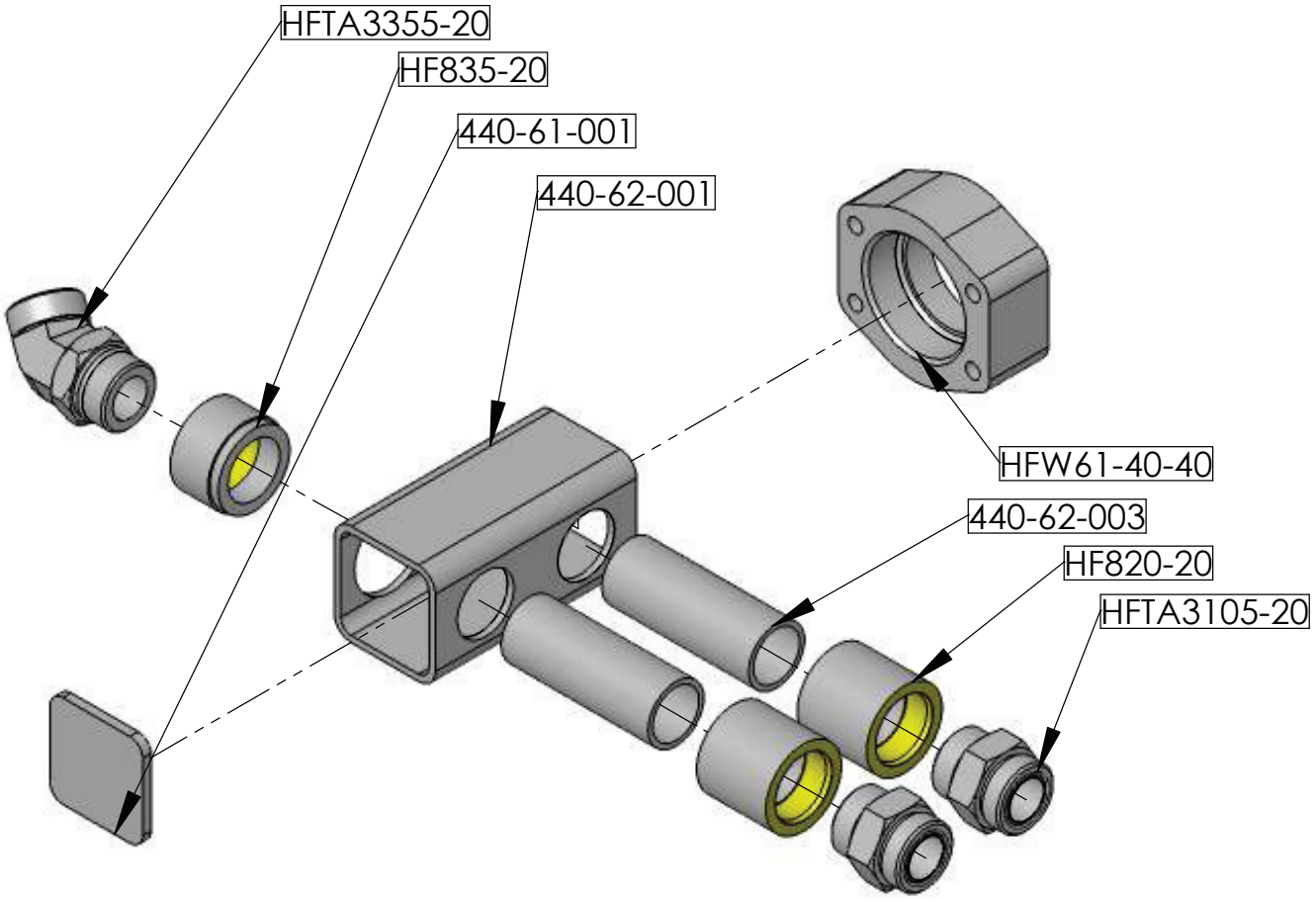




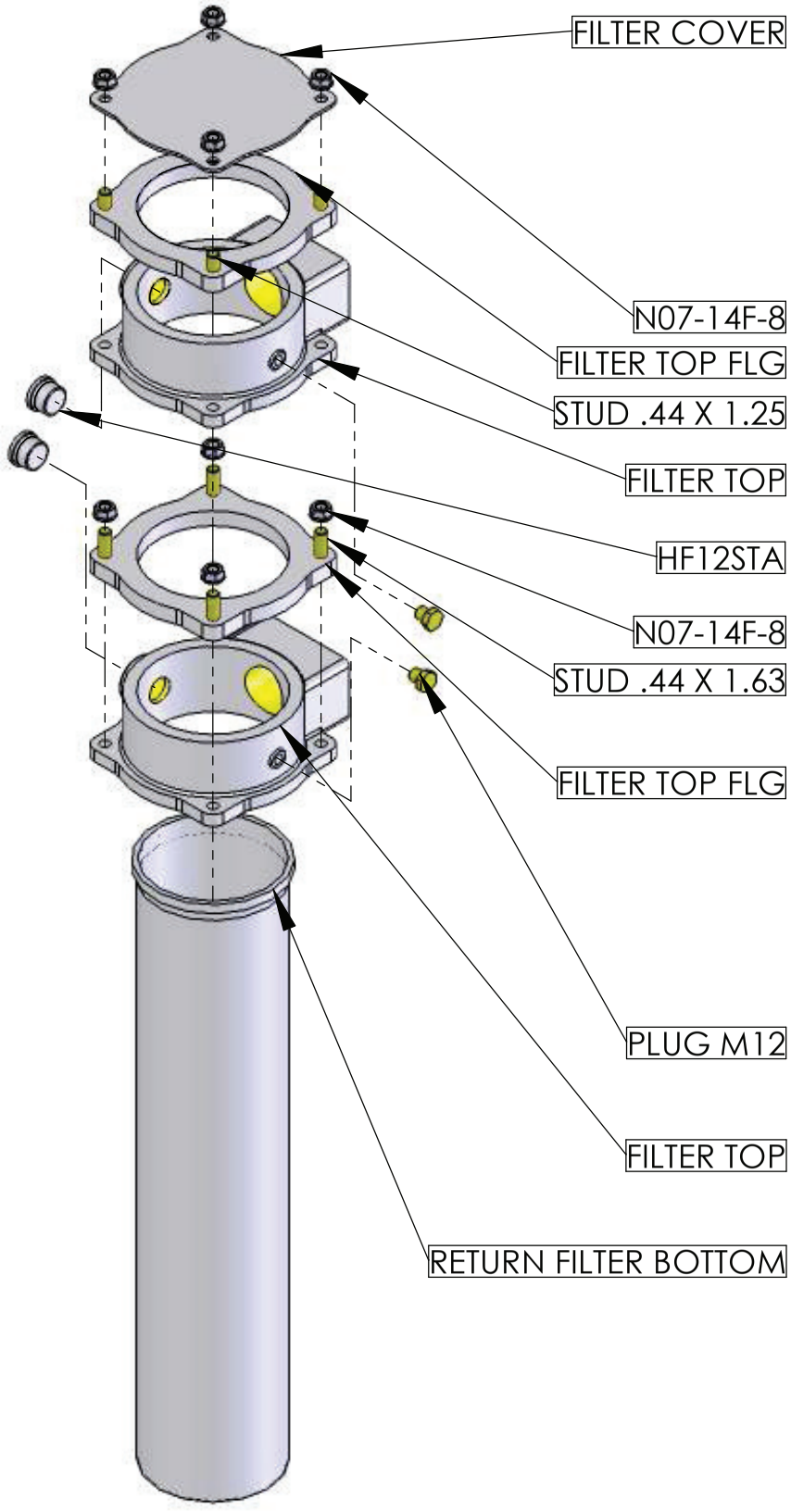


Suction Header Weld FTX 440

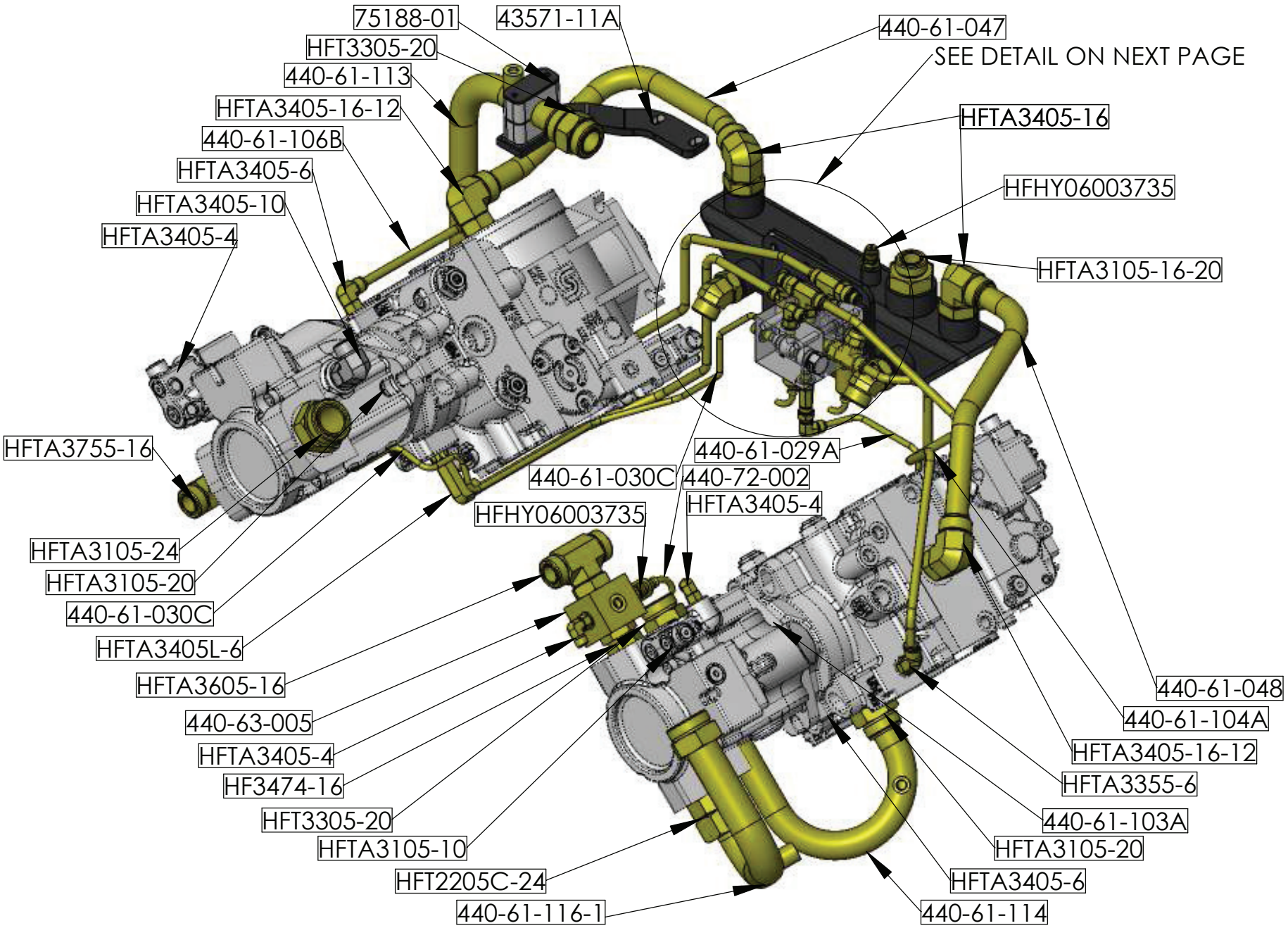




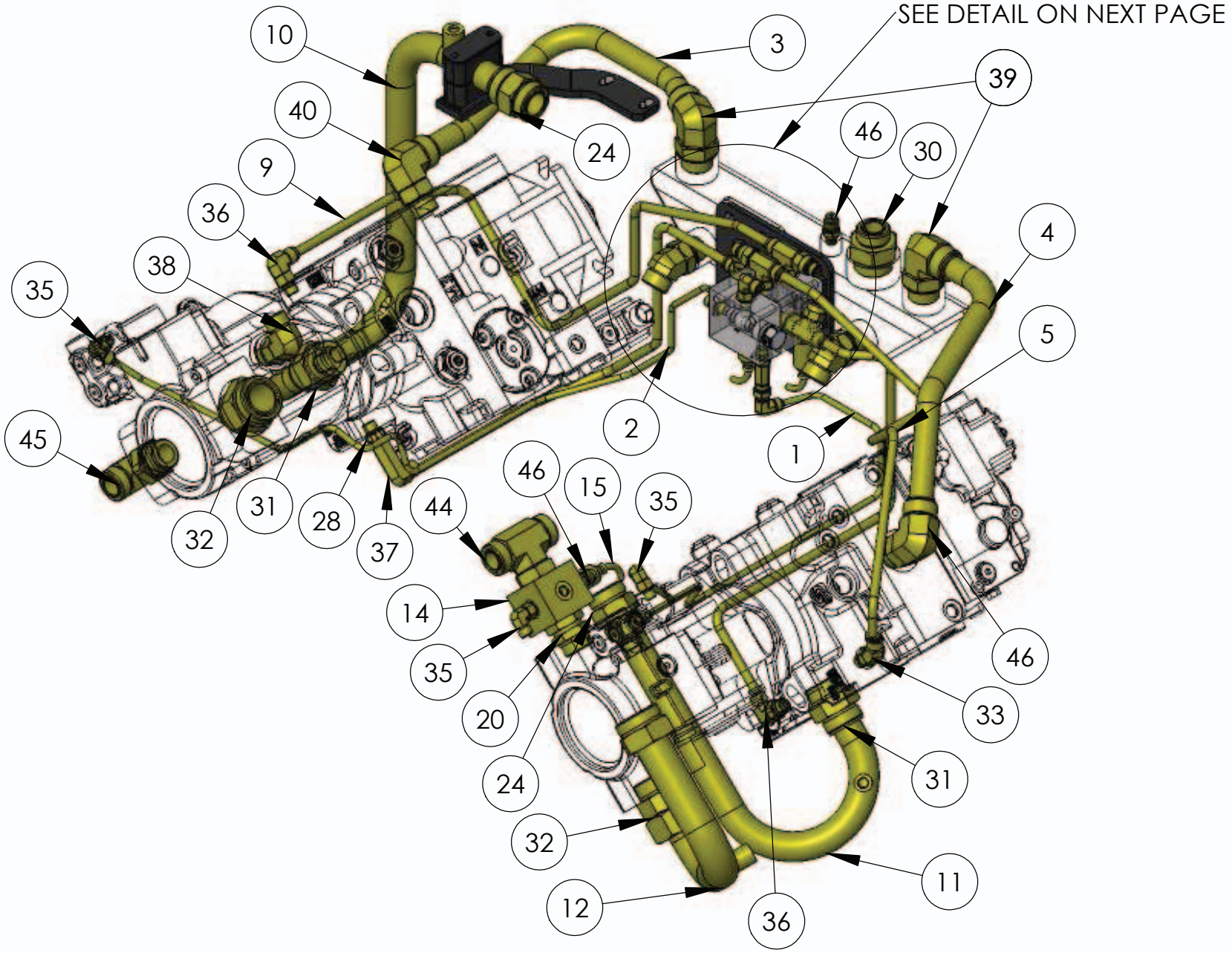
FTX 440 RETURN FILTER ASM



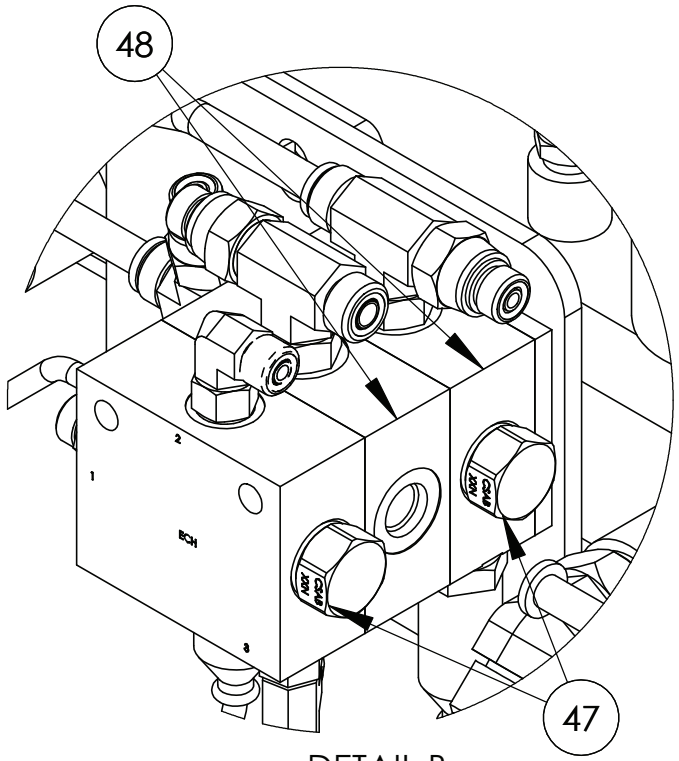
440 DRIVE PUMP HOSE CONNECTIONS



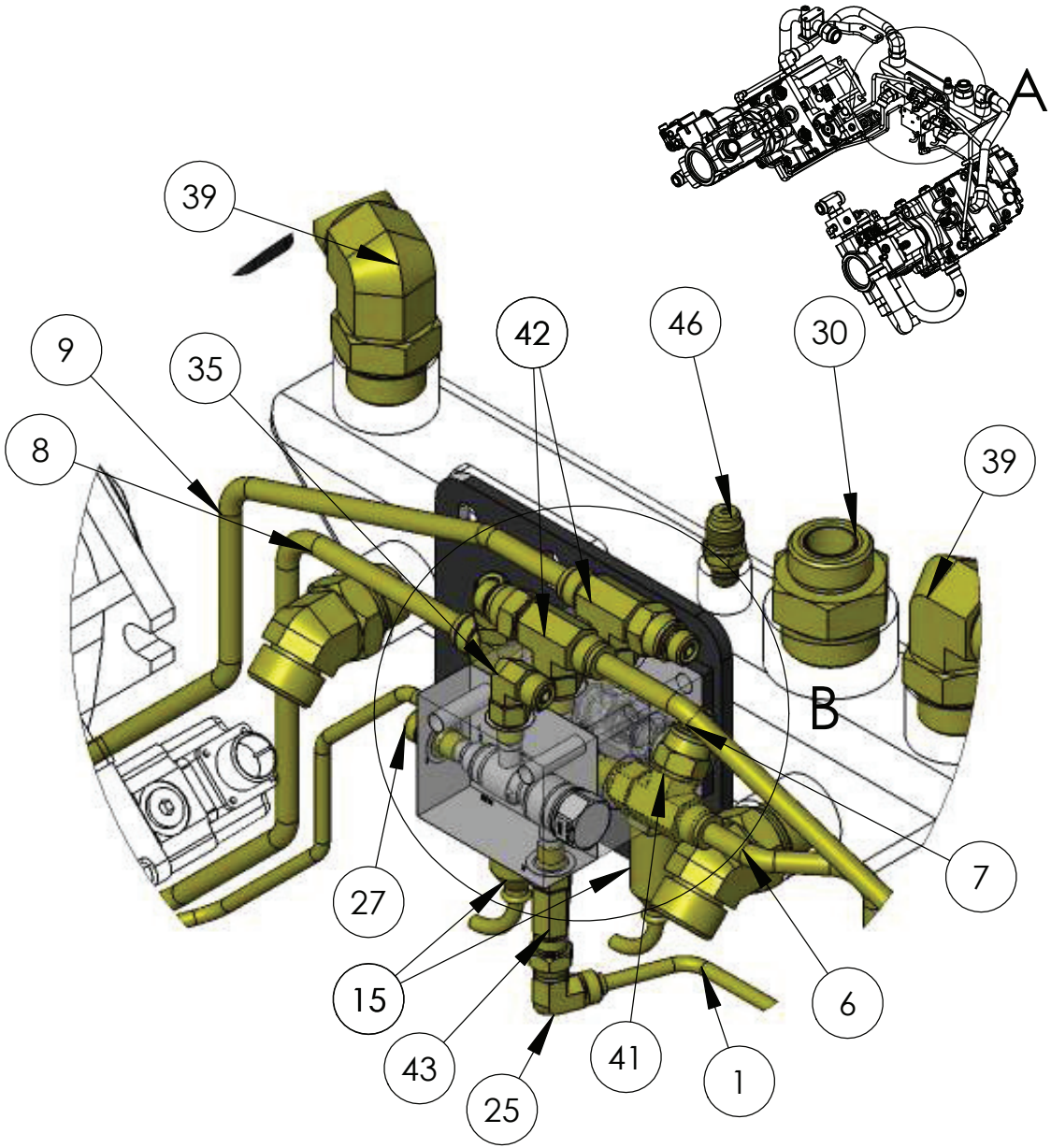
440 DRIVE PUMP HOSE CONNECTIONS



SHUTTLEVALVE CONNECTION DETAIL

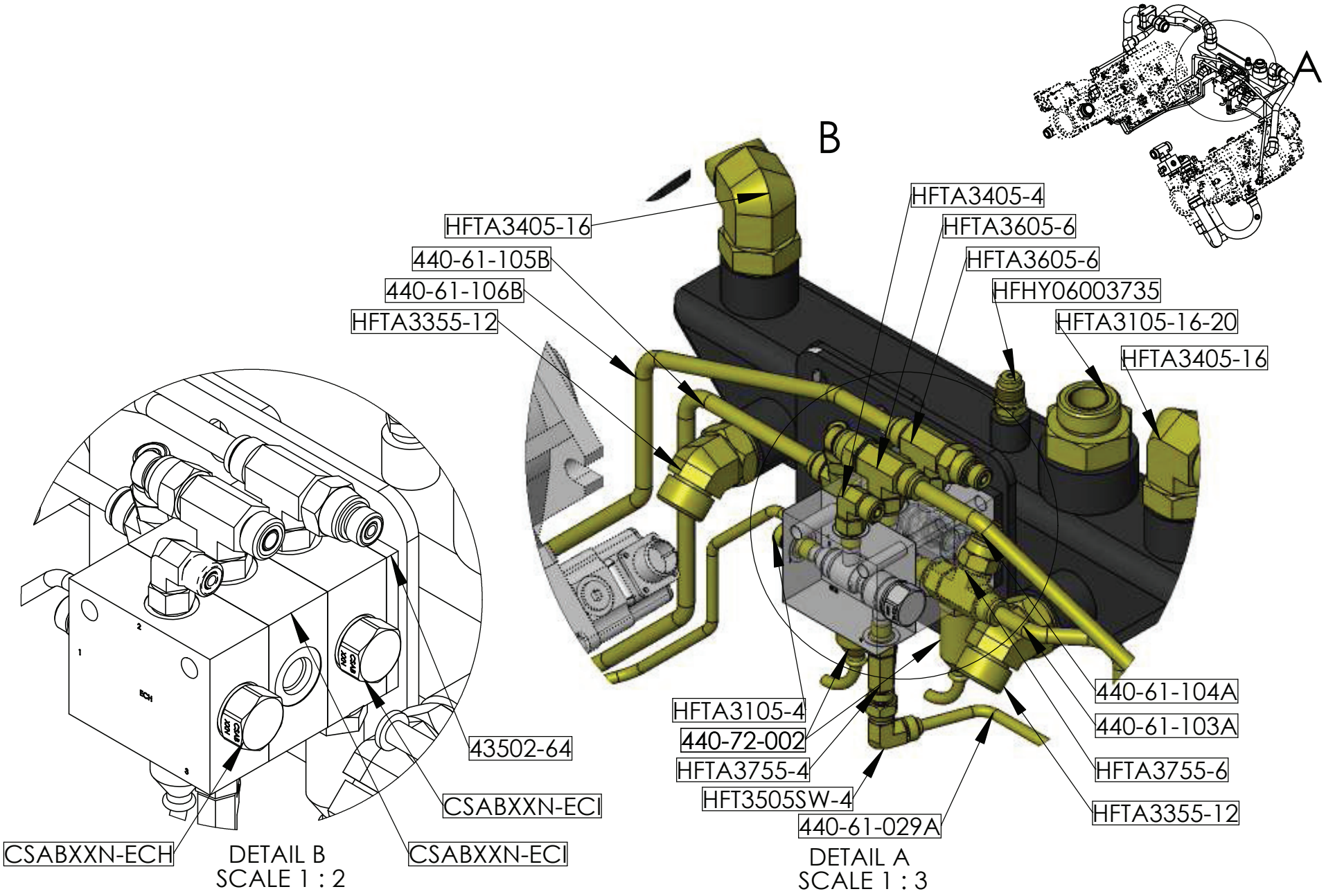


DETAIL B
SCALE 1 : 2



DETAIL A
SCALE 1 : 3

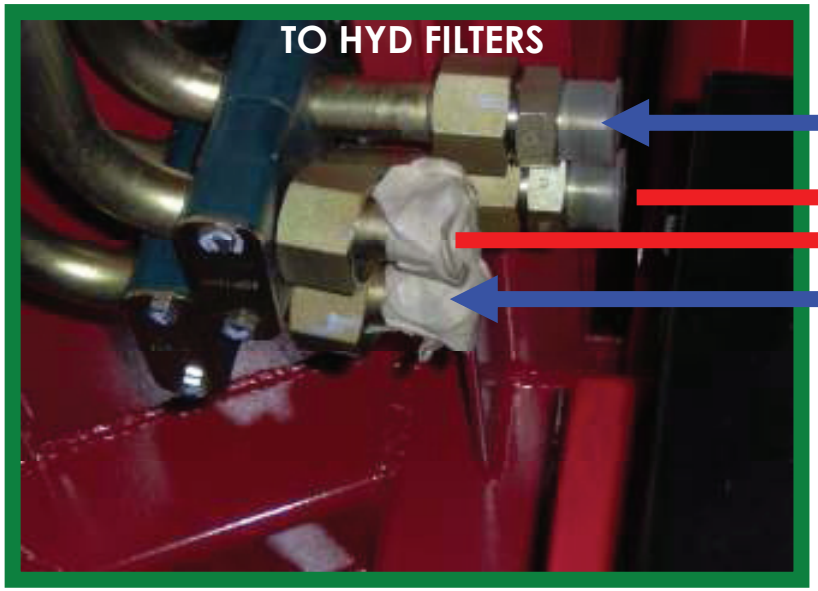
SHUTTLEVALVE CONNECTION DETAIL



PUMP HOSE & FITTINGS PARTS LIST

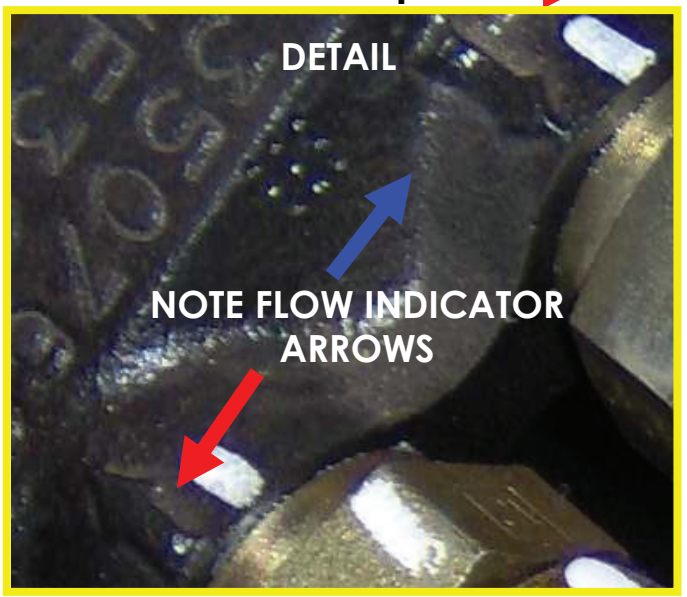
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	440-61-029B	Tube Left Pump Load Sense	1
2	440-61-030C	Tube Right Pump Load Sense	1
4	440-61-047	Tube Right Pump Case	1
5	440-61-048	Tube Left Pump Case	1
6	440-61-103A	Tube Left Pump Lower Pressure	1
7	440-61-104A	Tube Left Pump Upper Pressure	1
8	440-61-105B	Tube Right Pump Lower Pressure	1
9	440-61-106B	Tube Right Pump Upper Pressure	1
10	440-61-113	Tube Left Track Pump Suction	1
11	440-61-114A	Left Track Pump Suction Tube	1
12	440-61-116	Tube Suction Left Open Loop	1
13	440-61-116-1	Suction Tube Left Open Loop	1
14	440-63-005	PUMP OUTLET MANIFOLD FTX-440	1
15	440-72-002	TRANSDUCER PRESSURE IQAN 7250 PSI	3
16	HF835-4	#4 SAE Oring Weld Half Coupling	1
17	HF835B-4	#4 SAE Oring Weld Half Coupling Bevel	1
18	HF835-16	#16 SAE Oring Weld Half Coupling	2
19	HF835-20	#20 SAE Oring Weld Half Coupling	1
20	HF3474-16	#16 SAE O-ring to O Ring Adapter	1
21	HFT1453-24-24	#24 Face Seal to Tube Braze On End	1
22	HFT2205N-24	#24 Face Seal Cap	1
23	HFT2406-6-4	#6F TO #4M FACE SEAL ADAPTER	4
24	HFT3305-20	#20 FACE SEAL UNION ADAPTER	2
25	HFT3505SW-4	#4 Face Seal Swivel Nut 90 EL	1
26	HFT3505SW-6	#6 Face Seal Swivel Nut 90 EL	1
27	HFTA3105-4	#4 Face Seal to Oring Adapter	1
28	HFTA3105-6	#6 Face Seal to Oring Adapter	1
29	HFTA3105-10	#10 Face Seal to O-ring Adapter	1
30	HFTA3105-16-20	#16 Face Seal to #20 Oring Adapter	1
31	HFTA3105-20	#20 Face Seal to Oring Adapter	2
32	HFTA3105-24	#24 Face Seal to Oring Adapter	2
33	HFTA3355-6	#6 Face Seal to Oring 45 EL	1
34	HFTA3355-12	#12 Face Seal to Oring 45 EL	2
35	HFTA3405-4	#4 Face Seal to Oring 90 EL	5
36	HFTA3405-6	#6 Face Seal to Oring 90 EL	2
37	HFTA3405L-6	#6 Face Seal to #6 O-ring Long 90 EL	1
38	HFTA3405-10	#10 FASEAL TO #10 ORING 90 DEG EL	1
39	HFTA3405-16	#16 Face Seal to Oring 90 EL	2
40	HFTA3405-16-12	#16 Face Seal to #12 Oring 90 EL	2
41	HFTA3755-6	#6 Face Seal to Oring Run Tee	2
42	HFTA3605-6	#6 Face Seal to Oring Branch Tee	2
43	HFTA3755-4	#4 Face Seal to O-ring Run Tee	1
44	HFTA3605-16	#16 Face Seal to Oring Branch Tee	1
45	HFTA3755-16	#16 Face Seal to Oring Run Tee	1
46	HFHY06003735	Pressure Test Port #4 Oring	2
47	182048	CART SUN LS SHUTTLE 2.5GPM	2
48	182068	BODY SUN ECI/S T-11A #6 3 PORT	2
49	182416	BODY SUN ECH T-11A #4 3 PORT	1

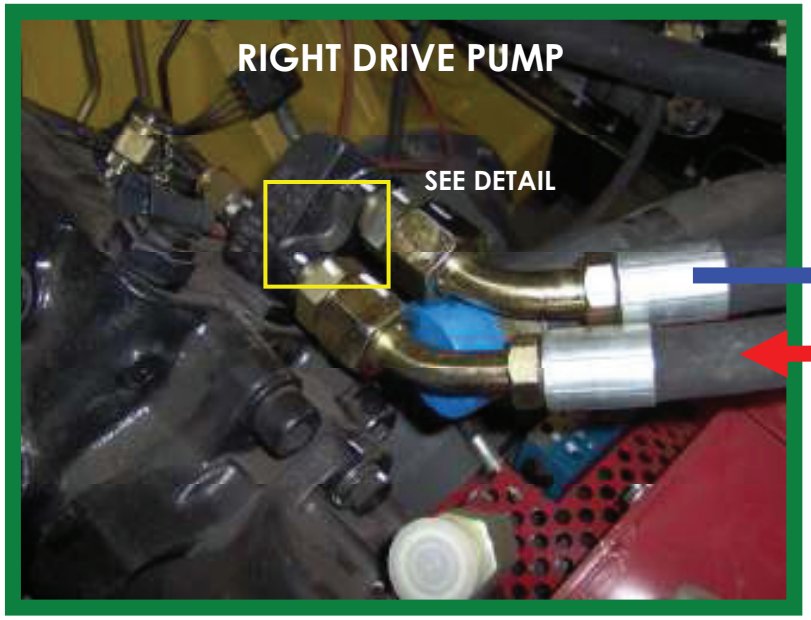
HYDRAULIC FILTER HOSE ROUTING

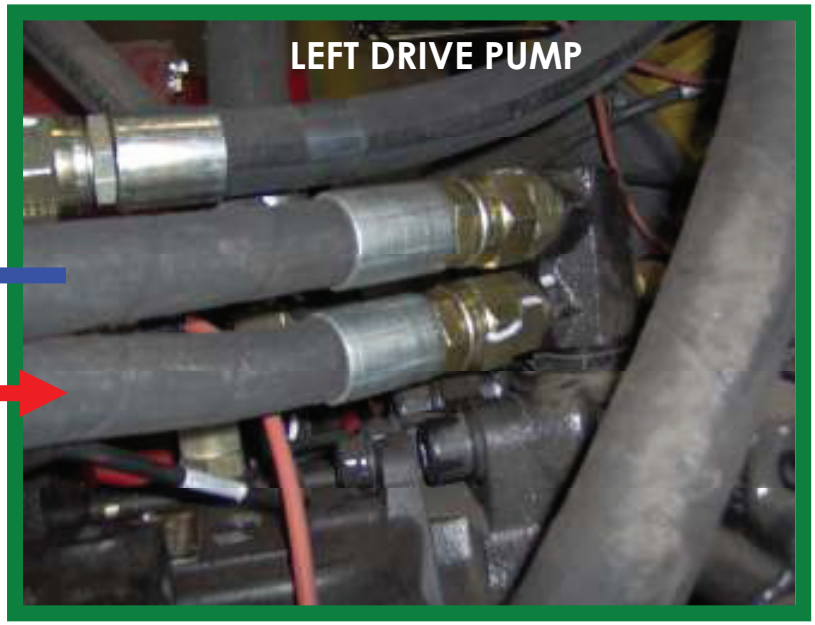


Flow to Filter

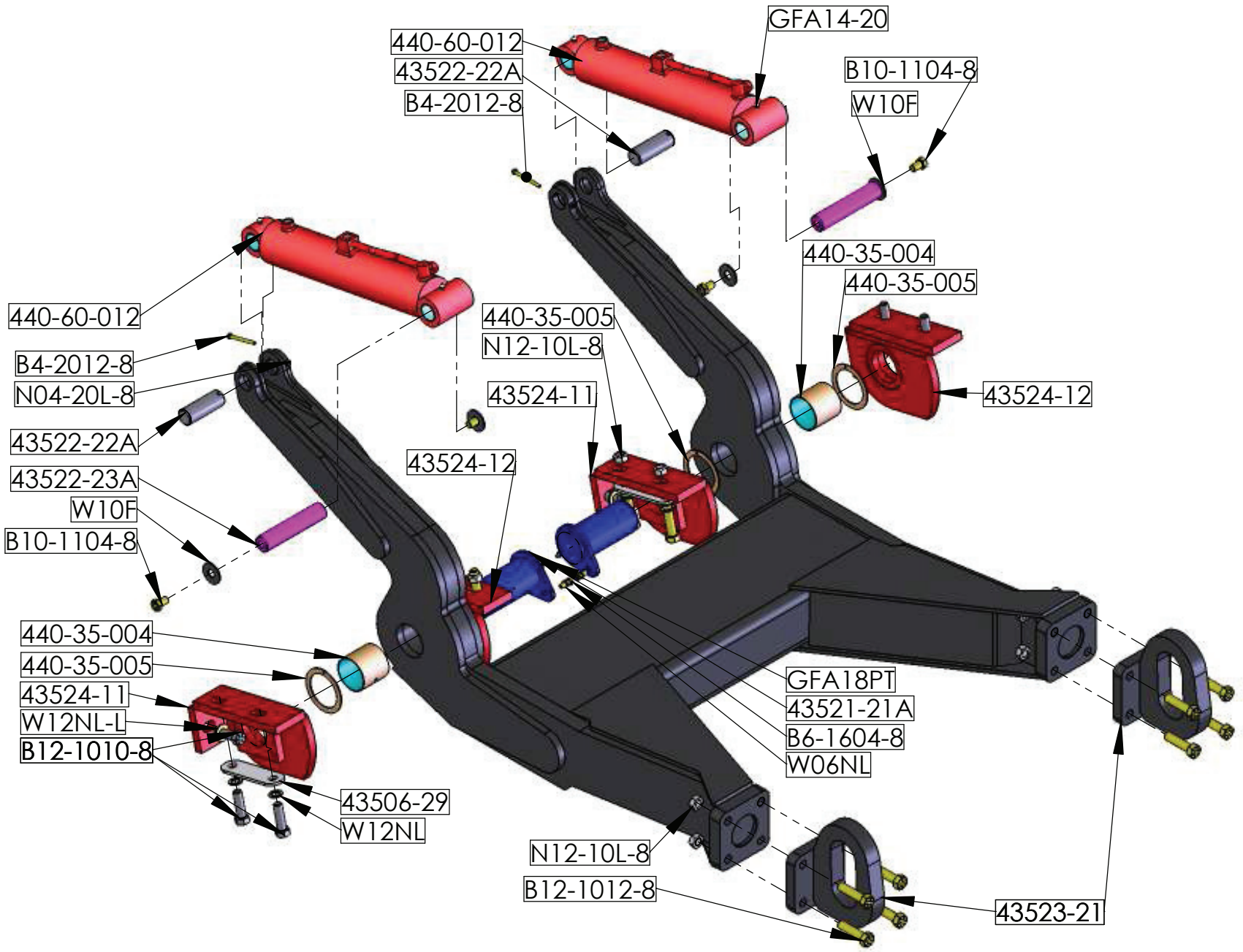
Return to Pump







LIFT ARM ASM


GFA14-20
440-60-012
43522-22A
B4-2012-8
B10-1104-8
W10F
440-35-004
440-35-005
440-60-012
440-35-005
N12-10L-8
B4-2012-8
N04-20L-8
43524-11
43524-12
43522-22A
43524-12
43522-23A
W10F
B10-1104-8
440-35-004
440-35-005
43524-11
W12NL-L
B12-1010-8
GFA18PT
43521-21A
B6-1604-8
W06NL
43506-29
W12NL
N12-10L-8
B12-1012-8
43523-21

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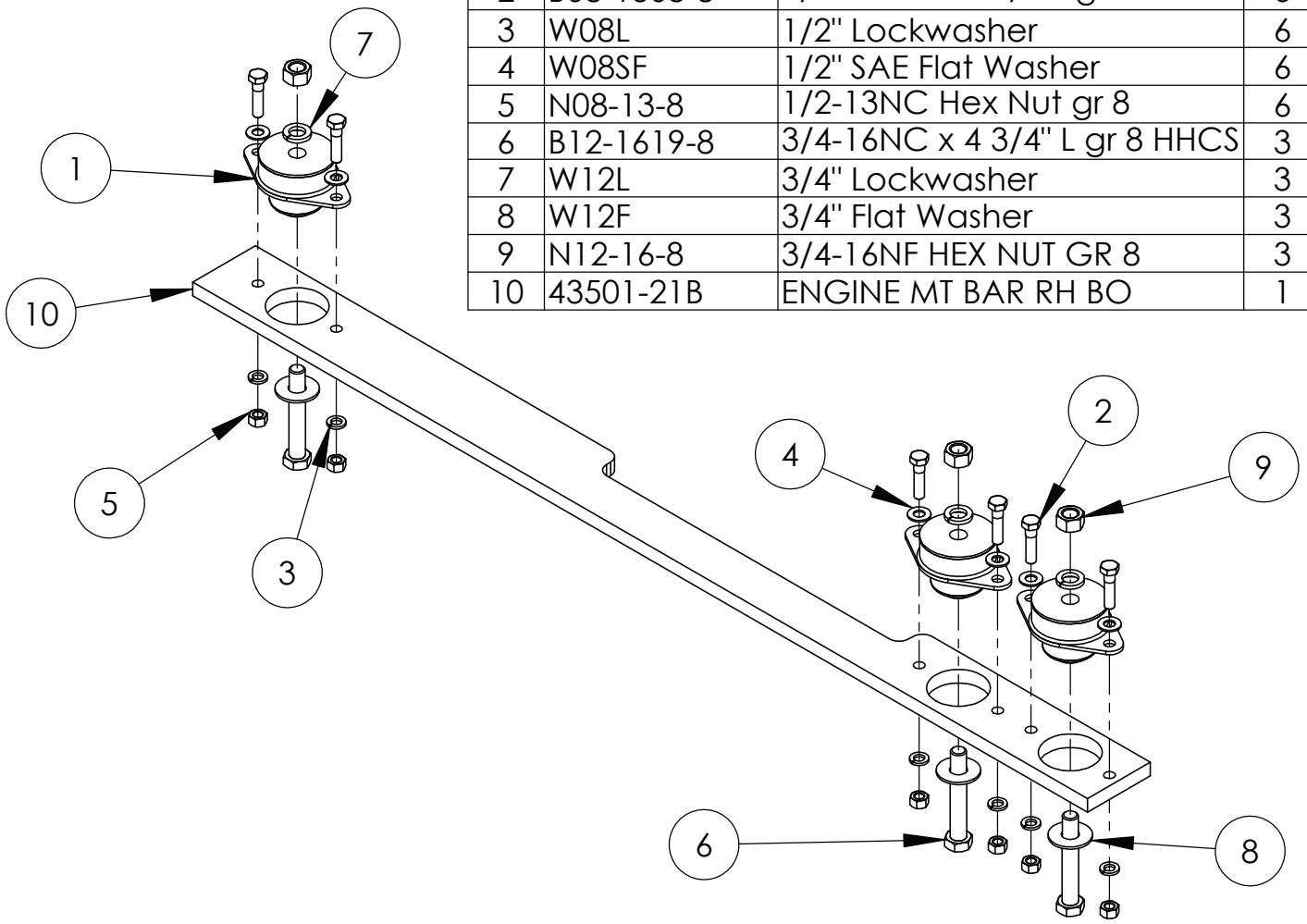
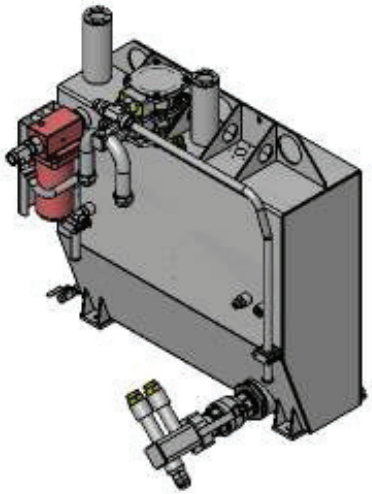
MOTOR MOUNT ASSEMBLY INSTRUCTION

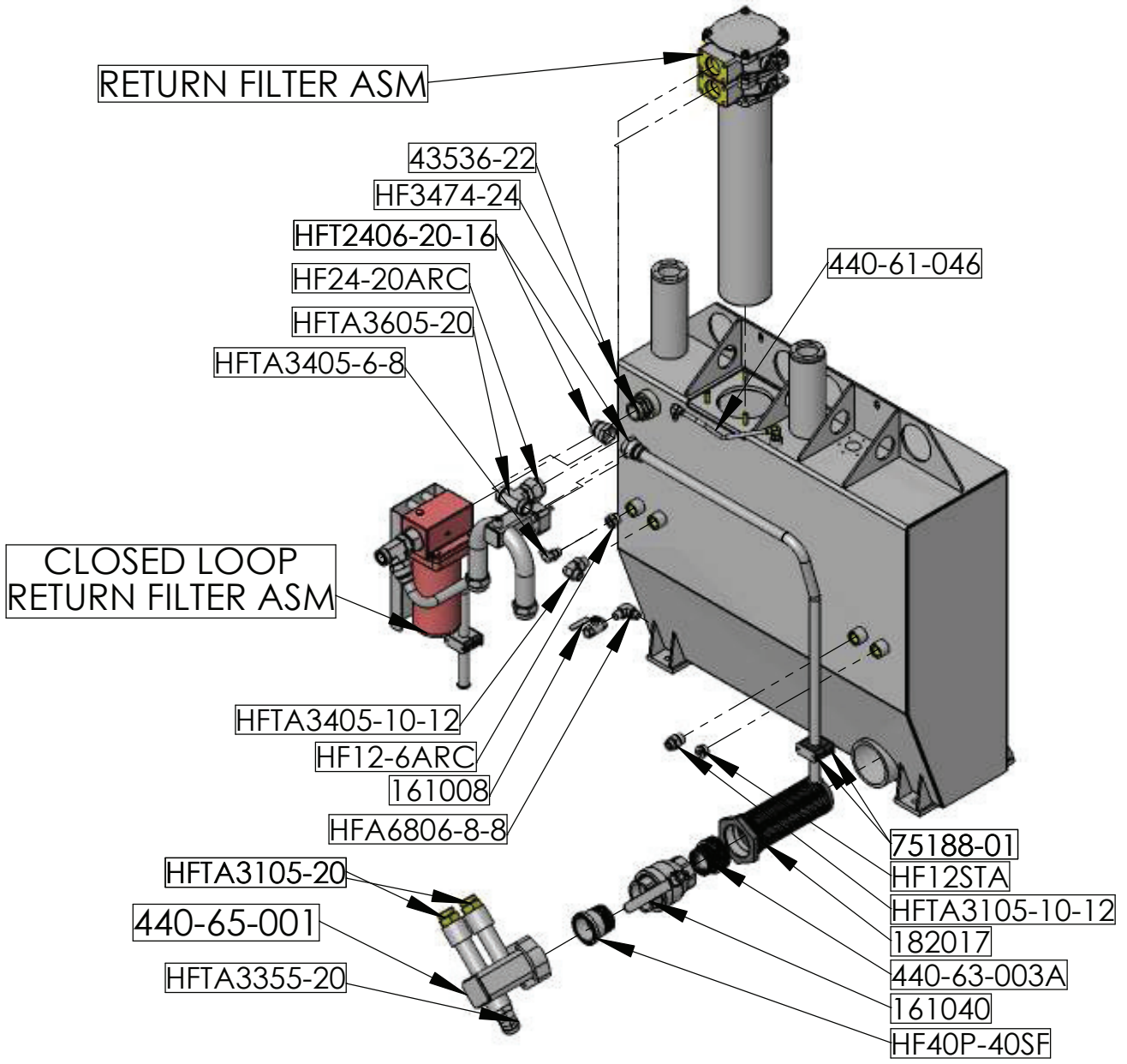
THIS SHOWS THE PARTS ANDHARDWARE
USED ON THE 440 ENGINE MOUNTS.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	440-55-001	CUSHION MOUNT, ENGINE	3
2	B08-1308-8	1/2-13NC x 4 1/4"L gr 8 HHCS	6
3	W08L	1/2" Lockwasher	6
4	W08SF	1/2" SAE Flat Washer	6
5	N08-13-8	1/2-13NC Hex Nut gr 8	6
6	B12-1619-8	3/4-16NC x 4 3/4" L gr 8 HHCS	3
7	W12L	3/4" Lockwasher	3
8	W12F	3/4" Flat Washer	3
9	N12-16-8	3/4-16NF HEX NUT GR 8	3
10	43501-21B	ENGINE MT BAR RH BO	1

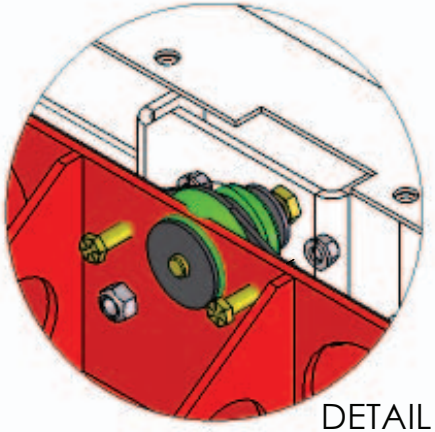


Hyd Tank w/Vent Dip Tube

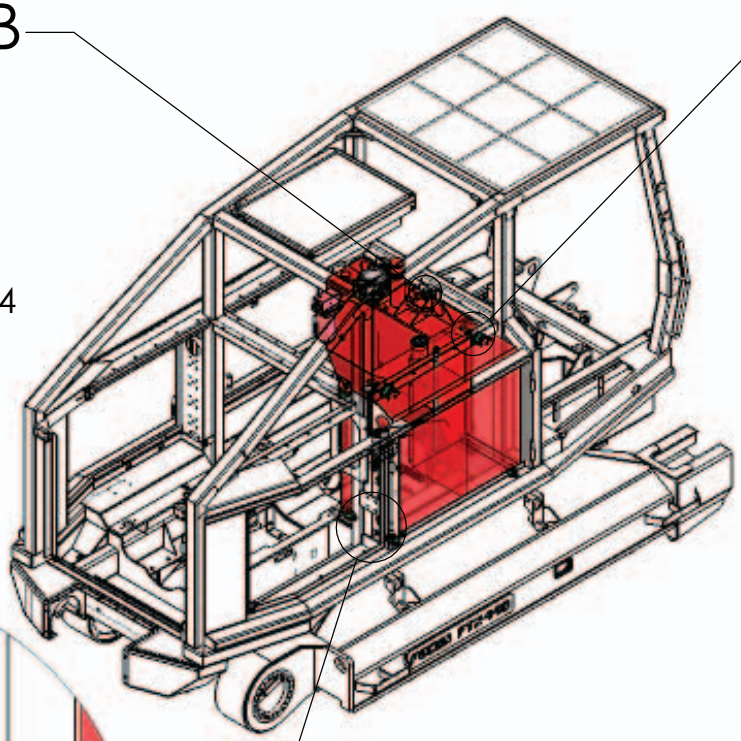


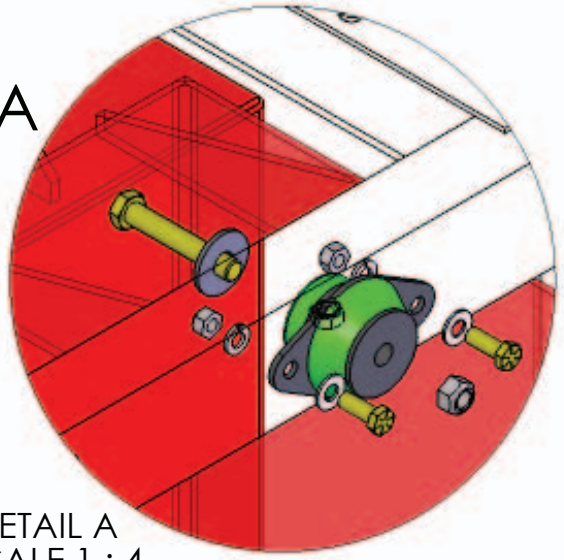


TANK MOUNT INSTALLATION

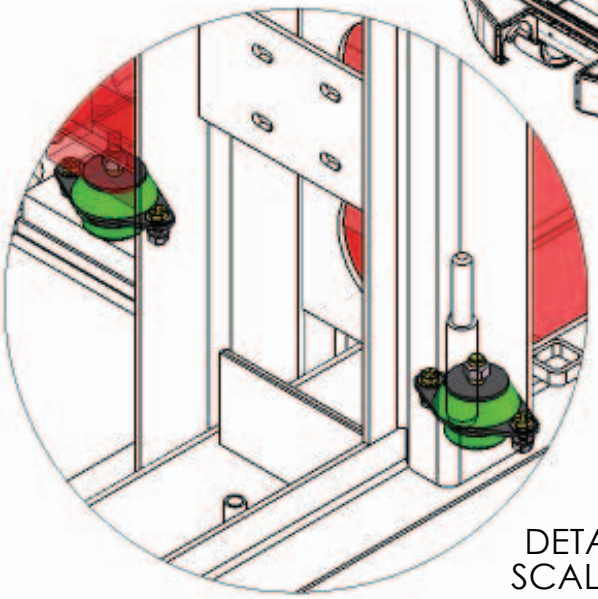


DETAIL B
SCALE 1 : 4





DETAIL A
SCALE 1 : 4

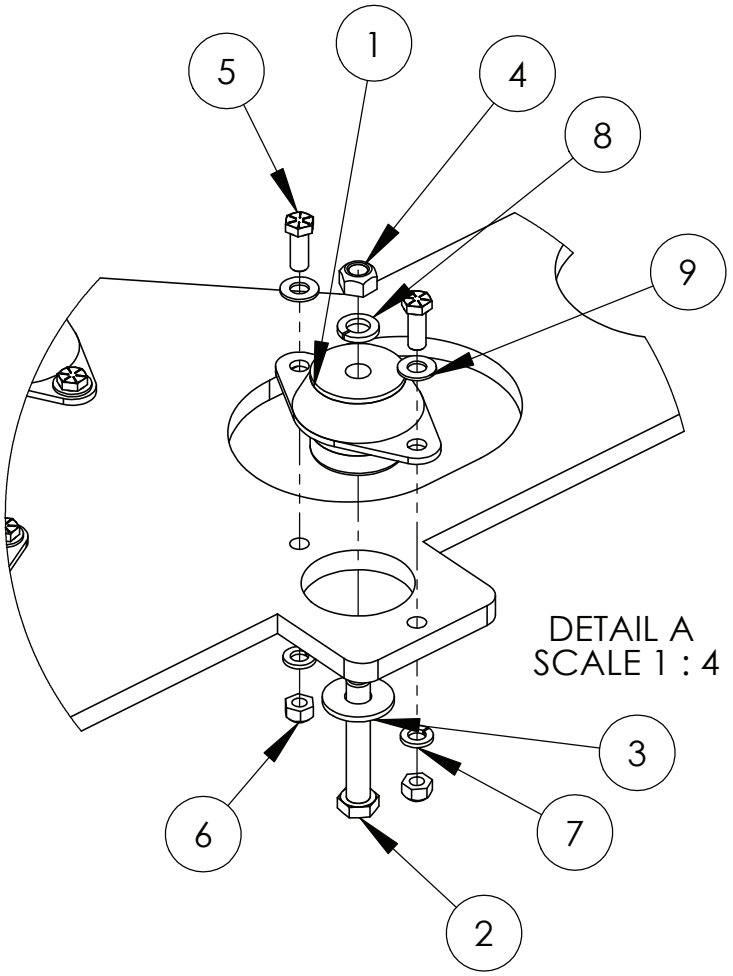


DETAIL C
SCALE 1 : 6

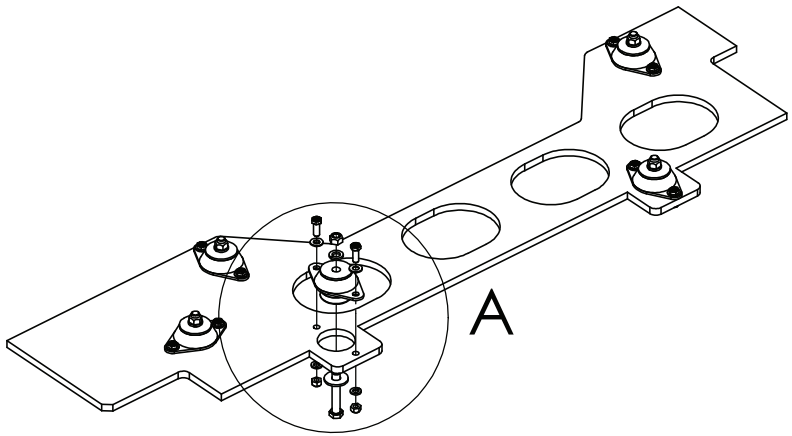
CUSHION MOUNT (440-15-001) IS USED AT ALL TANK MOUNTING POINTS AS SHOWN HERE. REFER TO FOLLOWING PAGE FOR HARDWARE REQUIRED.

TANK MOUNT INSTALLATION

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	440-45-001	51508 SERIES MOUNT	5
2	B8-1312-8	BOLT 1/2-13 X 1-1/2 GR8	5
3	WASHER	WASHER .5625 X 1.5 X.125	5
4	N08-13L-8	LOCK NUT 1/2-13 GR8	5
5	B6-1604-8	BOLT 3/8-16 X 1 GR8	10
6	N06-16L-8	3/8" NUT	10
7	W06L	3/8" Lockwasher	10
8	W08L	1/2" Lockwasher	5
9	W06F	3/8" Flat Washer	10



DETAIL A
SCALE 1 : 4



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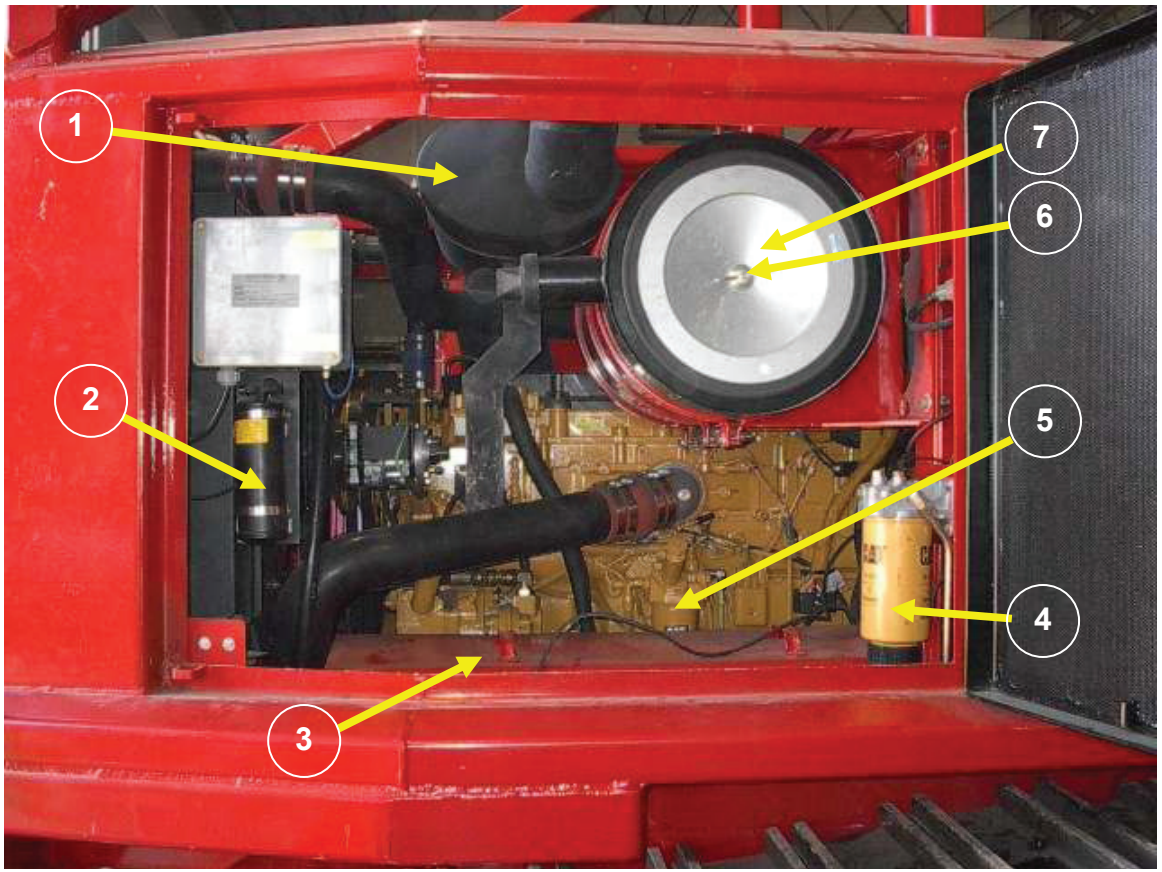
FTX-440 MAINTENANCE PARTS

MAINT. PARTS RIGHT REAR



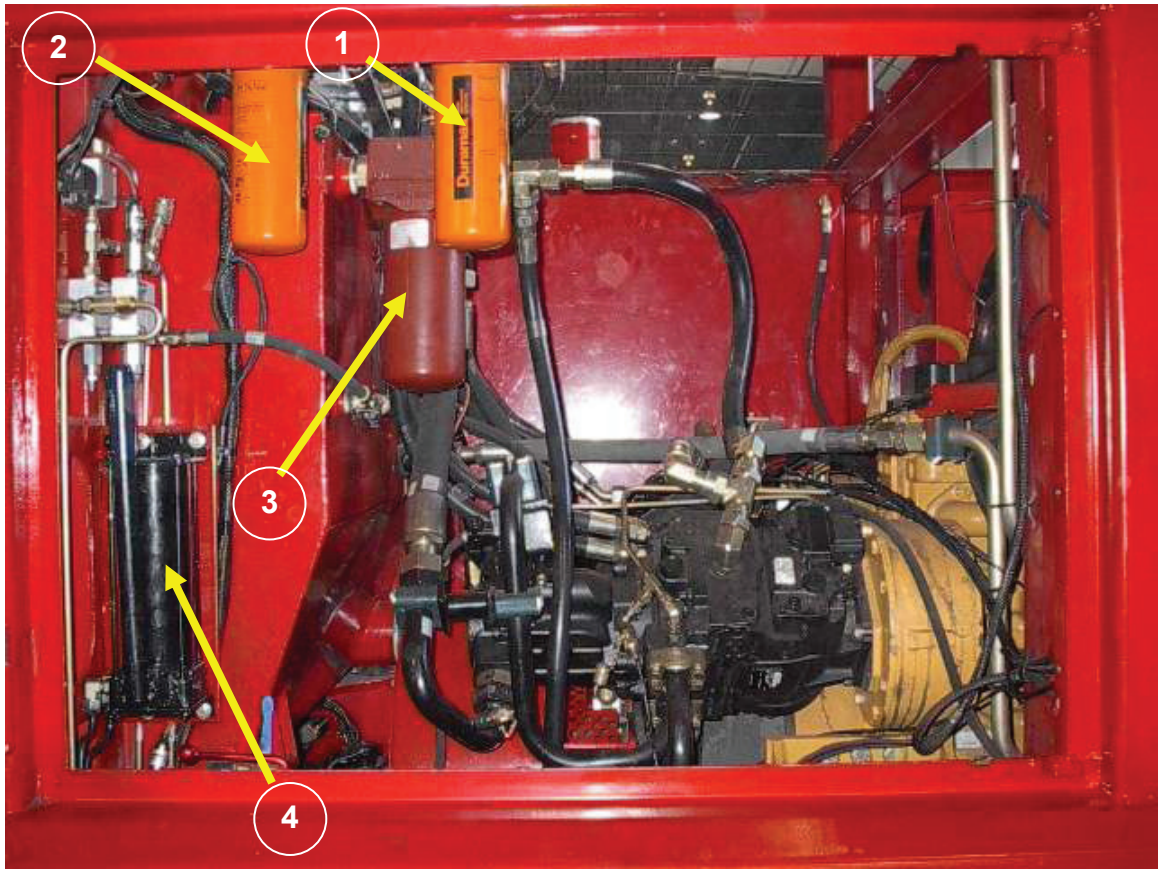
ITEM NO.	PART NUMBER	DESCRIPTION
1	RT440038	MUFFLER
2	RT71003002053	FILTER DRIER RECIEVER
3	440-70-001	BATTERY
4	44-1R-0749	FUEL FILTER
5	44-1R-0771	FUEL / WATER SEPERATOR FILTER
6	51044-01	PRIMARY AIR CLEANER ELEMENT
7	51044-02	SECONDARY AIR CLEANER ELEMENT

MAINT. PARTS LEFT REAR

ITEM NO.	PART NUMBER	DESCRIPTION
1	44-197-8820	ALTERNATOR, 24V, 95A
2	440-57-055	AC BELTS, CX90, 94.2 OUTSIDE
3	440-57-001	C13 RADIATOR

NOTE* REPLACEMENT RADIATOR CAP P/N IS 660-21-138

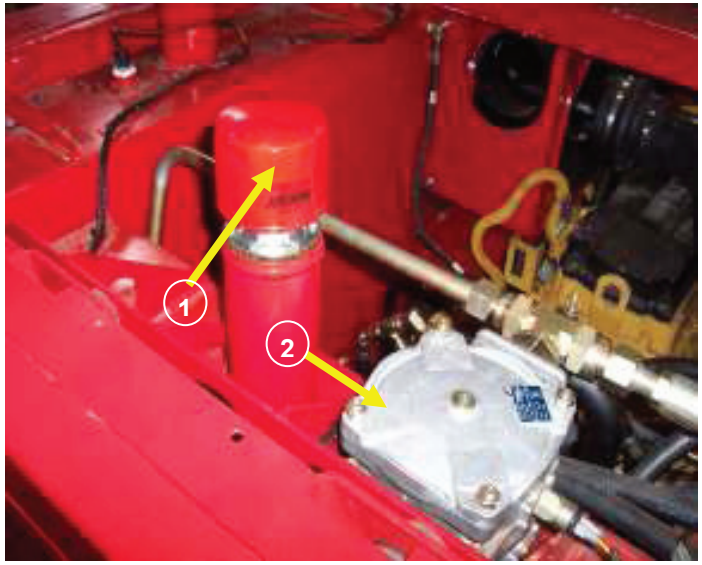
MAINT. PARTS LEFT FRONT



ITEM NO.	PART NUMBER	DESCRIPTION
1	440-60-007	HYD FILTER ELEMENT, SUCTION
2	440-60-007	HYD FILTER ELEMENT, RETURN
3	BH203-01*	HYD FILTER ELEMENT, 100GPM
4	RT208902002	HYD HAND PUMP, UNDER CAB ACCESS

*** WHEN REPLACING FILTER (BH203-01) CHECK O-RING (P/N BH203-02). REPLACE IF NEEDED**

MAINT. PARTS CAB AREA



ITEM NO.	PART NUMBER	DESCRIPTION
1	11783	FILLER BREATHER
2	440-60-010	CHARGE FILTER, 10 MICRON
3	440-45-021-01	PRIMARY CAB AIR CLEANER ELEMENT
4	440-45-021-02	SECONDARY CAB AIR CLEANER ELEMENT
5	440-46-005	INSIDE CAB AIR CLEANER ELEMENT

1-800-528-3113

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BULL HOG

ROTOR INSTALLATION PROCEDURE

BH-BRGINST-65
BH-BRGINST-90

Bearing Installation Tool Kits:

65MM (2-1/2") Bearing Installation Tool Kit
P/N: BH-BRGINST-65

P/N	Description	Quantity
BH-BRGINST-001-01	Bearing Installation Tool Retainer Cap	1
BH-BRGINST-002-01	65MM Bearing Installation Tube	1
190046	5/8-11 All Thread x 13" Long	1
B10-1120S-5	5/8-11 NC Square Head Set Screw x 5" Long	4
N10-11H-5	5/8-11 NC Hex Nut	3
W10F	5/8 Flat Washer	5

90MM (3-1/2") Bearing Installation Tool Kit
P/N: BH-BRGINST-90

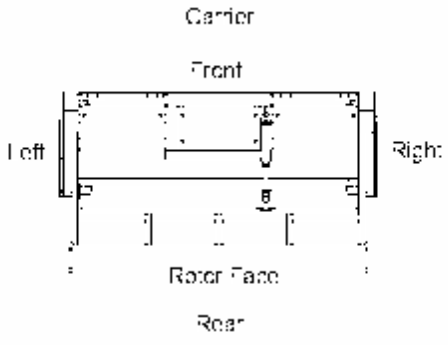
P/N	Description	Quantity
BH-BRGINST-001-01	Bearing Installation Tool Retainer Cap	1
BH-BRGINST-002-02	90MM Bearing Installation Tube	1
190046	5/8-11 All Thread x 13" Long	1
B10-1120S-5	5/8-11 NC Square Head Set Screw x 5" Long	4
N10-11H-5	5/8-11 NC Hex Nut	3
W10F	5/8 Flat Washer	5

Getting Started:

There are two methods to install the Bull Hog rotor.

- Method one, secure the Bull Hog rotor on a level, stable fixture i.e. steel constructed horses or equivalent and lower the body into position.
- Method two, secure the Bull Hog body on a level, stable fixture i.e. steel constructed horses, or carrier and lift the rotor into position. If carrier is used, safety provisions must be made to ensure the body is stable and to protect from cylinder bleed off.

This documentation will describe the first procedure in detail. If the second method is to be used, a fork lift or two (2) ton hydraulic floor jacks can be used to lift and lower the rotor in lieu of the Bull Hog body.



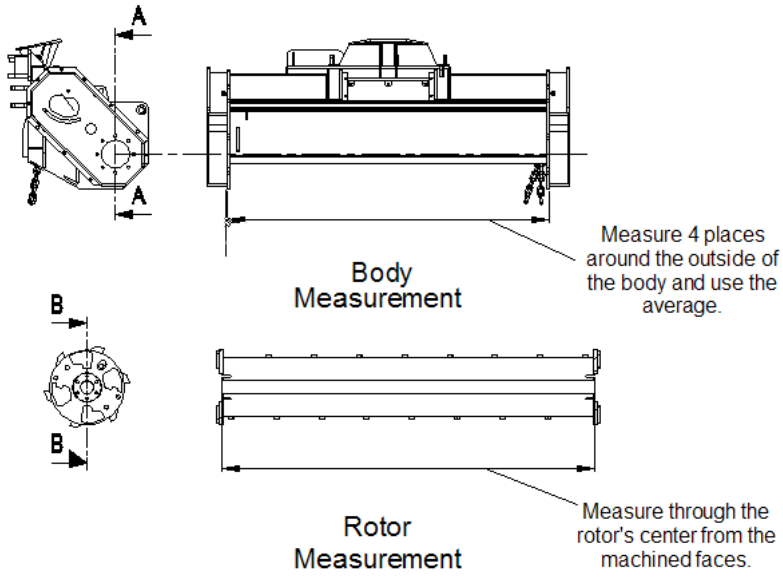
Bull Hog Orientation
Illustration 1

Preparation:

- Secure the Bull Hog rotor on level, stable fixture. The fixture used will need to be sufficient to hold the entire weight of the assembled Bull Hog. Refer to Table 1.
- With a black permanent marker, mark each stub shaft to identify the side and index of their current location. The stub shafts will be replaced on the same side and index to preserve balancing.

Rotor Shaft Identification
Illustration 2

- Remove both stub shafts using a 1/2" allen wrench. (5/8-11 Socket Head Cap Screws x 2" long)



Rotor & Body Measurements
Illustration 3

- Measure the Bull Hog body from the outside of the left bearing pilot to outside the right bearing pilot.
  - Record Body Measurement _____
- Measure the Bull Hog rotor through the rotor's center from outside of the left stub shaft bolt face to outside of the right stub shaft bolt face.
  - Record Rotor Measurement _____
- Subtract the Rotor Measurement from Body measurement _____
  - Record Actual Difference Measurement _____

TABLE 1

Excavator Units

Model	Body Dimension	Rotor Dimension	Difference Dimension	Bearing Tool Kit	Bearing Type	Stub Shaft Clearance	Approx. Weight
BH47EXC	38-1/8"	31-13/16"	6-5/16”	BH-BRGINST-65	STD	2"	1936 lbs
BH62EXC	50-5/8"	44-1/4	6-3/8”	BH-BRGINST-65	STD	2"	2559 lbs
BH74EXC	61-3/4"	55-5/16"	6-7/16”	BH-BRGINST-65	STD	2"	2950 lbs
BH40EXC-SD	38-1/4"	31-1/2"	6-3/4”	BH-BRGINST-65	HD	2-1/8"	3000 lbs
BH80EXC	57-3/4"	51"	6-3/4”	BH-BRGINST-65	HD	2-1/8"	4400 lbs
BH250EXC	60-5/8"	53-7/8"	6-3/4”	BH-BRGINST-65	HD	2-1/8"	6500 lbs

Hydraulic Units

Model	Body Dimension	Rotor Dimension	Difference Dimension	Bearing Tool Kit	Bearing Type	Stub Shaft Clearance	Approx. Weight
BH74H	61-3/4"	55-5/16"	6-7/16”	BH-BRGINST-65	STD	2"	2400 lbs
BH85H	72-7/8"	66-7/16"	6-7/16”	BH-BRGINST-65	STD	2"	2700 lbs
BH99H	87"	80-9/16"	6-7/16”	BH-BRGINST-65	STD	2"	4400 lbs
BH120H-SD	87"	80-1/4"	6-3/4”	BH-BRGINST-65	HD	2-1/8"	4900 lbs
BH250H	91"	84-1/4"	6-3/4”	BH-BRGINST-65	HD	4"	7200 lbs
BH350H	91"	82-5/8"	8-3/8”	BH-BRGINST-90	HD	4-1/2'	8700 lbs

Skid-Steer Units

Model	Body Dimension	Rotor Dimension	Difference Dimension	Bearing Tool Kit	Bearing Type	Stub Shaft Clearance	Approx. Weight
BH62SS	50-5/8"	44-1/4"	6-3/8”	BH-BRGINST-65	STD	2"	2000 lbs
BH74SS	61-3/4"	55-5/16"	6-7/16”	BH-BRGINST-65	STD	2"	2250 lbs
BH85SS	72-7/8"	66-7/16"	6-7/16”	BH-BRGINST-65	STD	2"	2580 lbs
BH62FM	50-5/8"	44-1/4"	6-3/8”	BH-BRGINST-65	STD	2"	2000 lbs
BH74FM	61-3/4"	55-5/16"	6-7/16”	BH-BRGINST-65	STD	2"	2250 lbs
BH85FM	72-7/8"	66-7/16"	6-7/16”	BH-BRGINST-65	STD	2"	2580 lbs

PTO Units

Model	Body Dimension	Rotor Dimension	Difference Dimension	Bearing Tool Kit	Bearing Type	Stub Shaft Clearance	Approx. Weight
BH80	57-3/4"	51-5/16"	6-3/4”	BH-BRGINST-65	STD	2"	2700 lbs
BH85	72-7/8"	66-7/16"	6-7/16”	BH-BRGINST-65	STD	2"	3800 lbs
BH99	87"	80-9/16"	6-7/16”	BH-BRGINST-65	STD	2"	4500 lbs
BH120	87"	80-1/4"	6-3/4”	BH-BRGINST-65	STD	2-1/2"	5000 lbs
BH250	91"	84-1/4"	6-3/4”	BH-BRGINST-65	HD	4"	7100 lbs
BH350	91"	82-5/8"	8-3/8”	BH-BRGINST-90	HD	4-1/2"	8140 lbs

- To determine amount of shimming required:

“Chart Difference Dimension” _____

Minus -

“Actual Difference Dimension” _____

= Total Shim Thickness Required = _____

NOTE: The total shim thickness should be distributed evenly between the floating and fixed sides

- To determine if either the bearings flange or the rotor needs to be shimmed:

    - If the actual difference recorded is <u>less than Chart Difference Dimension,</u> put compensating half moon shims ***between the bearing flange and box sidewall.*** Shim thickness = approximately ½ Total shim thickness recorded above"

    - If the actual difference recorded is <u>more than Chart Difference Dimension,</u> put compensating ring shims ***between the Stub shaft flange and labyrinth seal spacer.*** Shim thickness = approximately ½ Total shim thickness recorded above"

Rotor & Housing Shims

Illustration 4

Example for BH250 PTO: Chart difference dimension = 6-3/4”
Actual difference dimension = 6-3/8

Total shim thickness required is 1/8”
Actual difference is LESS than chart difference so bearing to be shimmed 1/16” on each side.

NOTE: Shims are available in 1/16” increments, if the spacing requires an uneven amount; the larger amount should be installed on the floating/right hand side. Refer to illustration 1. Example: If 3/16” shim is required use a 1/16” shim on the floating/right hand side and a 1/8” shim on the fixed/left side.

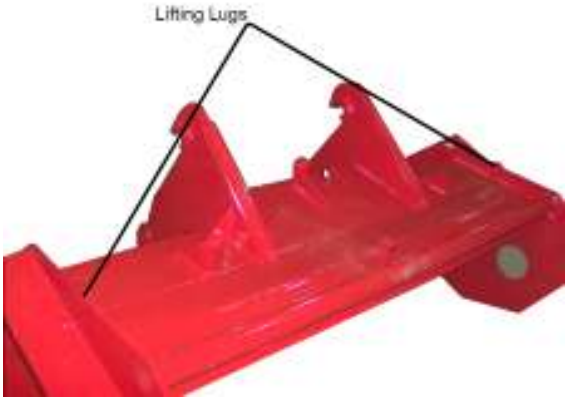
Installing Rotor and Stub Shafts:

- Temporarily install both bolting flanges by loosely securing the rings with (2) bearing bolts as shown in Illustration 5. For BH74H, BH85H, BH99H, BH47EXC, BH62EXC, BH74EXC, and all Skid-Steer models use 5/8-11 Grade 8 Hex Head Cap Screws 2" long. For all larger models and Severe Duty models use 5/8-11 Grade 8 Hex Head Cap Screws 2-1/4" long.

Bearing Retainer

Illustration 5

- With an overhead crane or equivalent lift the Bull Hog body and lower directly over rotor so that both stub shafts can be reinstalled through the bearing pilot holes. Refer to illustrations 5 and 6.



Lifting Lug Locations

Illustration 6

- Using a clean, dry cloth wipe both mating surfaces of the stub shaft and the rotor pilot to clean the surface of any debris or dirt, apply a thin coat of anti-seize to both mating surfaces.
- Carefully install the stub shaft into rotor pilot, paying close attention to the markings to insure proper placement and rotation. It may be necessary to sand mating surfaces with an emery cloth to obtain proper fit.
- Reinstall stub shaft bolts with Nordlock lock washers and lock tight to secure the stub shaft. Use a cross bolt pattern to evenly draw the stub shaft snug against the rotor end cap, into the pilot.
- Make sure the stub shaft is properly aligned and it is not bound up. Once visual alignment is checked, using the same cross bolt pattern technique, torque the bolts to 180 ft/lbs.

- Repeat for right side.

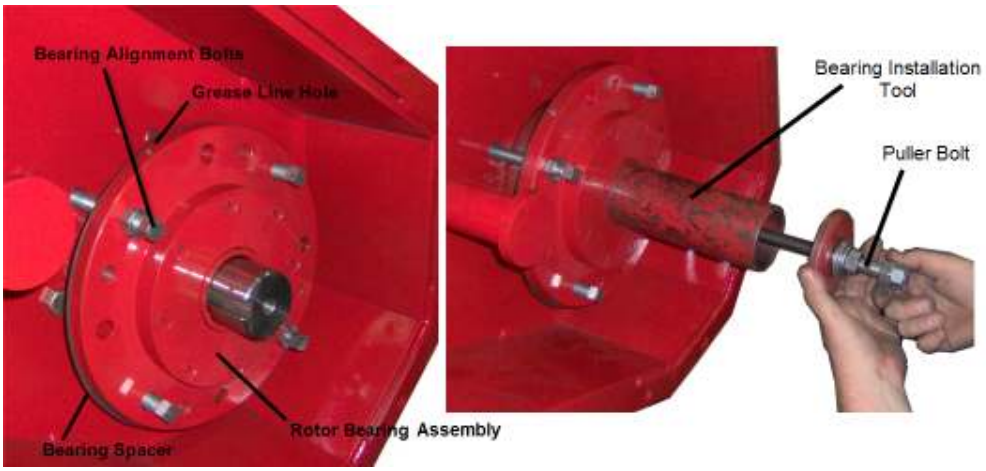
Installing Rotor Bearings:

- First install the left hand bearing, which is the fixed bearing and painted red.
- If shims are to be added to the rotor stub shaft, install them now by placing them over the stub shaft and sliding them firmly against the shoulder. If uneven spacing is required the smaller spacing should be installed now on the left side.

Installation of Rotor Stub Shaft Shims

Illustration 7

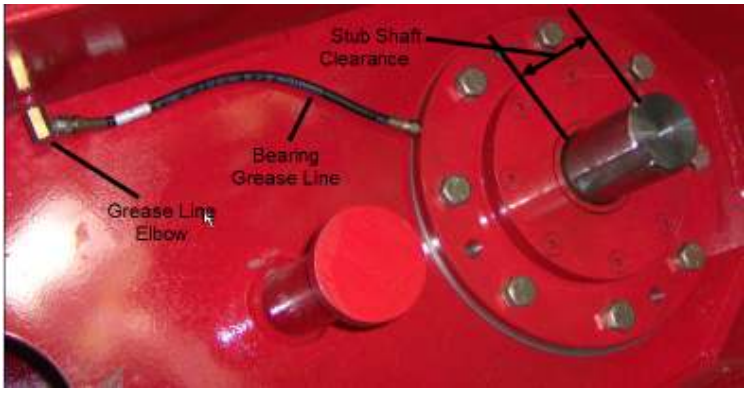
- Coat both the rotor stub shaft and the inside of the Red, fixed bearing with anti-seize and slide the bearing onto the stub shaft.
- Index the bearing so the grease line hole is directed towards the grease line bulkhead, ref to illustration 8 and 9. Install the (4) bearing alignment bolts through four equally spaced holes of bearing flange into bearing bolting flange. Remove the two temporary bolts holding bearing bolting flange in place. If shims are to be added to the bearing, install them now retaining them with the (4) bearing alignment bolts. See Illustration 8.
- Mount the bearing installation tool by sliding it over the rotor stub shaft and threading the puller bolt into the end of the rotor stub shaft.
- Tighten the puller bolt nut until the bearing is firmly seated against the Bull Hog stub shaft shoulder.
- First install and snug (4) bearing bolts with Nordlock lock washers and lock tight. Then, remove the (4) bearing alignment bolts and replace with the remaining (4) bearing bolts with Nordlock lock washers and lock tight.
- Remove the bearing installation tool.
- Torque the (8) bearing bolts using a cross bolt pattern to 180 ft/lbs.



Bearing Installation

Illustration 8

- Check stub shaft clearance as shown in illustration 9. Ref to Table 1 on page 3 for the recommended stub shaft clearance for your Bull Hog model. The clearance tolerance is ±1/16".
- Assemble the grease line to the bearing housing and the grease line elbow.



Grease Line & Stub Shaft Clearance

Illustration 9

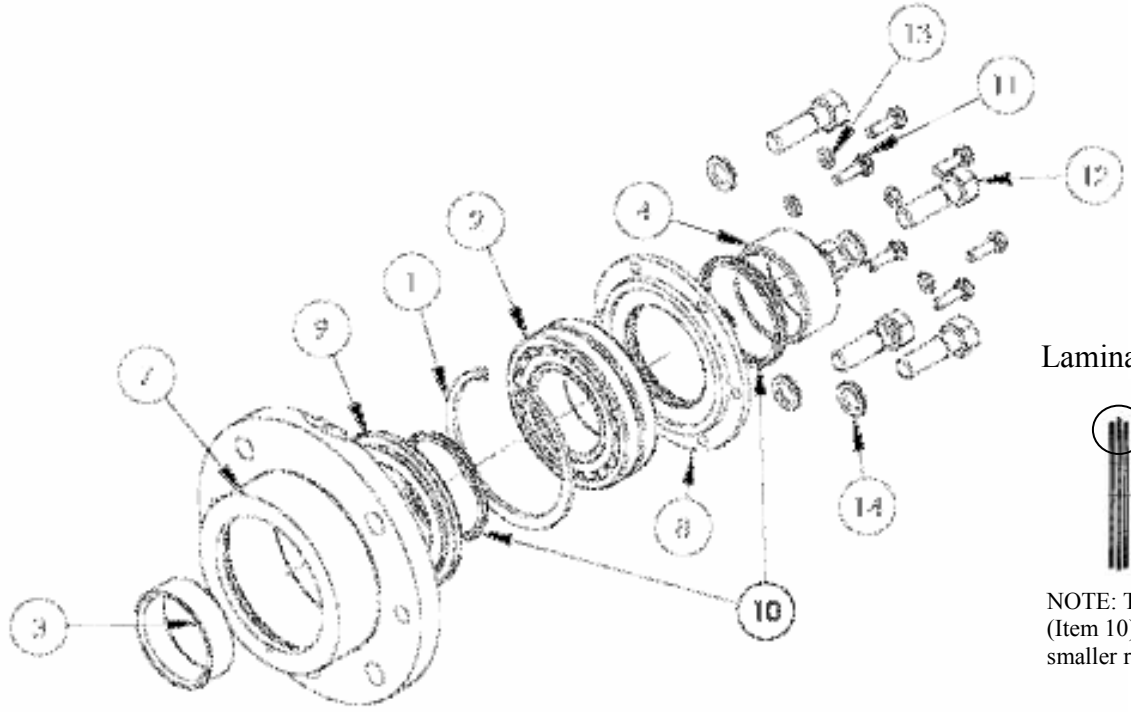
Repeat the "Installing Rotor Bearings" steps to install the right side bearing. The right side bearing is a floating type bearing and is painted black. Ensure the bearing shaft spacers are seated properly before installation.

- Once both bearings have been installed and torqued, lift the Bull Hog body to free the rotor. Spin the rotor by hand to ensure proper alignment and make sure the rotor is not bound up. If the rotor does not spin by hand check the bearings to ensure proper alignment and the rotor stub shafts to ensure they are properly seated and aligned.

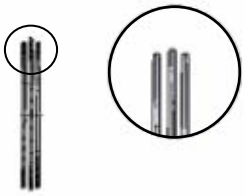
  NOTE: The center of gravity has changed dramatically; reposition the lifting chains to the lifting lugs located over rotor to accommodate this shift.
- Reinstall drive sheaves and drive belts. Replace belt housing covers. Lube grease lines.

Bearing Rebuild

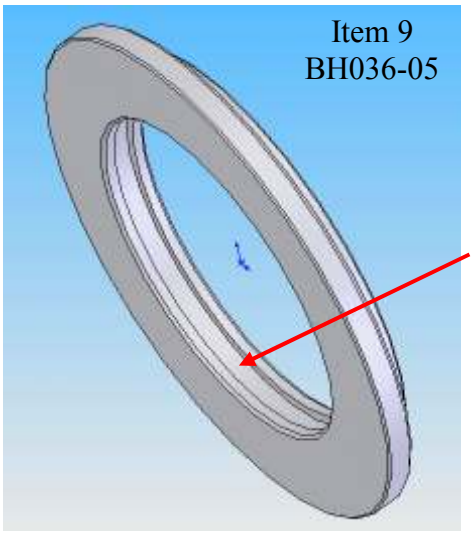
1. Disassemble the bearing to be rebuilt
2. Clean all components with solvent to remove grease and dirt.
3. Inspect all surfaces for damage and wear. Replace damaged and excessively worn parts.
4. The laminar rings (Item 10) should always be replaced.
5. The Inner and Outer seals, (items 8 and 9) should be checked for excessive wear along the path where the laminar rings rotate. If a notable groove is detected, replace the seal ring.
6. Re-paint the housings red (fixed) or black (floating).
7. Re-assemble according to appropriate assembly instructions for bearing being rebuilt.
8. Use new hardware when installing your rebuilt bearing.



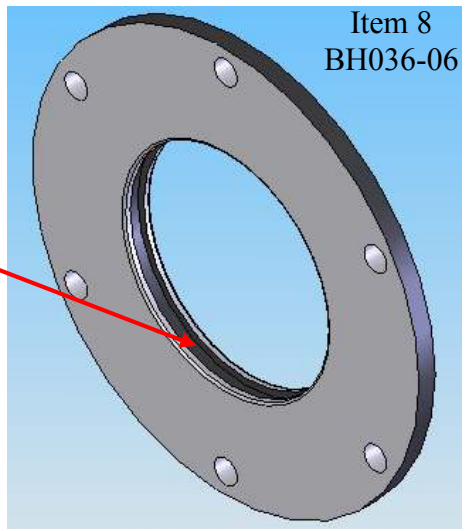
Laminar Ring Configuration



NOTE: The larger of the three rings (Item 10) must be between the two smaller rings.



Item 10 (Laminar Ring Set) fit inside the inner and outer seal rings. The Laminar rings should be replaced at EVERY rebuild. If excessive wear is shown on the seal rings, where laminar rings rotate, the seal rings should also be replaced.



3460 Grant Drive
Lebanon, Ohio 45036
Phone: (513)696-4430
Fax: (513)696-4431
www.fecon.com

BULLHOG CUTTER TOOL INSTALLATION

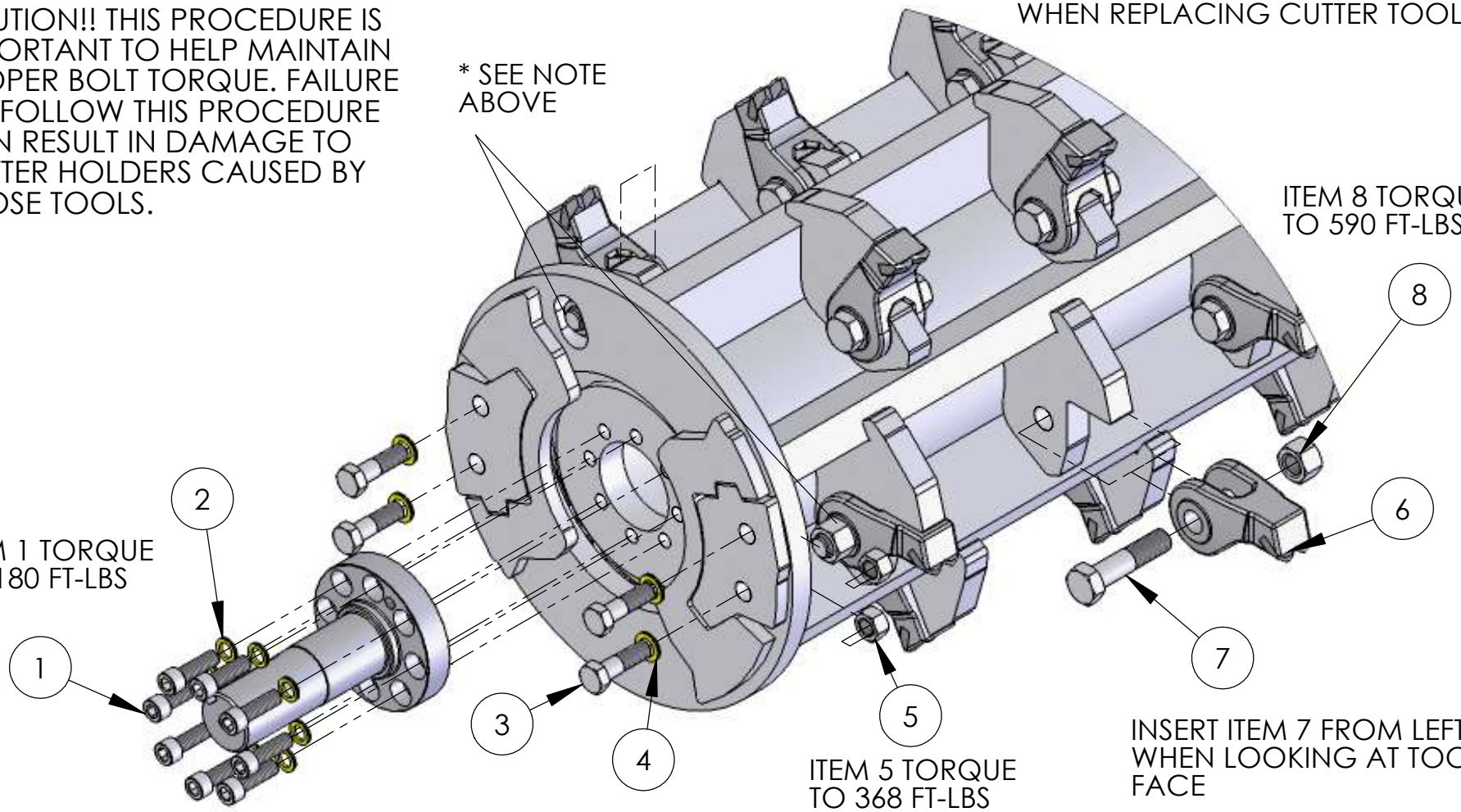
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	B10-1108A-8	5/8-11NC x 2" L gr 8 Allen Head	16
2	w10nl	5/8 NORD LOCK WASHER	16
3	B12-1610-8	3/4-16NC x 2 1/2" L gr 8 HHCS	8
4	w12nl	3/4 NORD LOCK WASHER	8
5	N12-16-8	3/4-16NF HEX NUT GR 8	8
6	BH46BFS26	TOOL STD BULL HOG	30
7	B24M-2100-10	M24-2.0 x 100mm gr 10.9 HHCS	30
8	N24M-2.0-10	M24-2.0 HEX NUT GR 10.9	30

WHEN REPLACING CUTTER TOOLS ON YOUR BULL HOG SHREDDER, NOTE THAT THE BOLTS MUST BE INSERTED FROM THE LEFT HAND SIDE AS YOU LOOK AT THE FACE OF THE CUTTING TOOL.

*THE ONLY EXCEPTION IS WHEN DISTANCE FROM TOOL HOLDER TO END PLATE IS SHORTER THAN THE BOLT LENGTH.

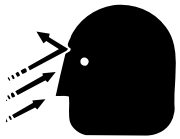
NOTE: ALWAYS USE NEW HARDWARE WHEN REPLACING CUTTER TOOLS!

CAUTION!! THIS PROCEDURE IS IMPORTANT TO HELP MAINTAIN PROPER BOLT TORQUE. FAILURE TO FOLLOW THIS PROCEDURE CAN RESULT IN DAMAGE TO CUTTER HOLDERS CAUSED BY LOOSE TOOLS.



BULLHOG LABELING SPECIFICATIONS

WARNING



STAY BACK!

Flying debris can cause injury.

DO NOT stand or walk near inlet or discharge area when rotor is turning.

Failure to comply could result in death or serious injury.

DL71010 REV 1

WARNING

WEAR APPROPRIATE SAFETY GEAR

Always wear hard hat, eye and ear protection when operating.

Failure to comply could result in death or serious injury.

DL71011 REV 1

WARNING

Read and understand owner's manual before operating.

Follow all safe operating procedures as detailed in owner's manual and Bull Hog service video.

Observe hazard zone. DO NOT operate within 300 feet of bystanders.

Ensure hook-up to carrier vehicle is properly secured before operating.

Operator's cab must be protected with both properly maintained LEXAN® polycarbonate (or equal) and Falling Object Protection.

Bystander and operator safety is the contractor's responsibility. FECON does not ensure bystander or operator safety.

Check bolt tightness: Maintain cutter bolt at 590-600 ft-lbs of torque.

Follow all preventative maintenance procedures outlined in owner's manual.

Maintain all safety decals. Replace if damaged or missing.

FECON shall not be liable for injury or damage to person or property which results from operation of this machine in non-compliance with any of the foregoing warnings or disclaimers, or in contravention of methods and procedures identified in the owner's manual or in operations for purposes not within the specifications for operation of this machine.

Failure to comply could result in death or serious injury.

DLSW2 Rev 2

WARNING

Read and understand owner's manual before operating.

Follow all safe operating procedures as detailed in owner's manual and Bull Hog service video.

Observe hazard zone. DO NOT operate within 300 feet of bystanders.

Ensure hook-up to carrier vehicle is properly secured before operating.

Operator's cab must be protected with both properly maintained LEXAN® polycarbonate (or equal) and Falling Object Protection.

Bystander and operator safety is the contractor's responsibility. FECON does not ensure bystander or operator safety.

Check bolt tightness: Maintain cutter bolt at 590-600 ft-lbs of torque.

Follow all preventative maintenance procedures outlined in owner's manual.

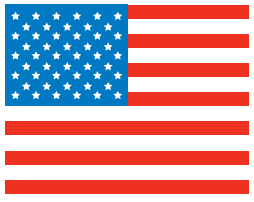
Maintain all safety decals. Replace if damaged or missing.

FECON shall not be liable for injury or damage to person or property which results from operation of this machine in non-compliance with any of the foregoing warnings or disclaimers, or in contravention of methods and procedures identified in the owner's manual or in operations for purposes not within the specifications for operation of this machine.

Failure to comply could result in death or serious injury.

DLSW2 Rev 2

MADE IN



U . S . A

DL71012

CAUTION

Periodic maintenance required

All bolts require periodic tightening.

See owners manual for maintenance schedule.

Failure to comply may result in equipment damage.

DLB103 REV 1

CAUTION

Periodic maintenance required

All bolts require periodic tightening.

See owners manual for maintenance schedule.

Failure to comply may result in equipment damage.

DLB103 REV 1

WARNING

ENTANGLEMENT HAZARD!

DO NOT operate without guards in place.

Failure to comply could result in death or serious injury.

DL12179 REV 1

WARNING

ENTANGLEMENT HAZARD!

DO NOT operate without guards in place.

Failure to comply could result in death or serious injury.

DL12179 REV 1

Serial No.

Model No.

711028

FECON DL-KIT-1 Rev 2
15" X 27"
01/25/06
PRINTED BY PRIME SOURCE

FECON INC
BULLHOG BH350-PTO
PARTS MANUAL

3460 GRANT DRIVE Å LEBANON, OH Å 45036

TOLL FREE Å 800-528-3113 Å WWW.FECON.COM

BH410-21 REV B

BH350-PTO

Contents

SAFETY FIRST

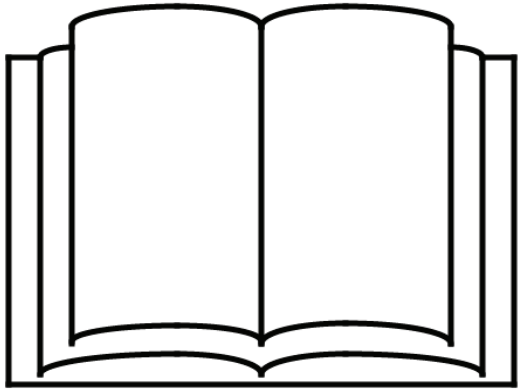
> With any piece of equipment, new or used, the most important part of its operation is **SAFETY!**

> It is important that the **SAFETY** video is viewed before operating this equipment.

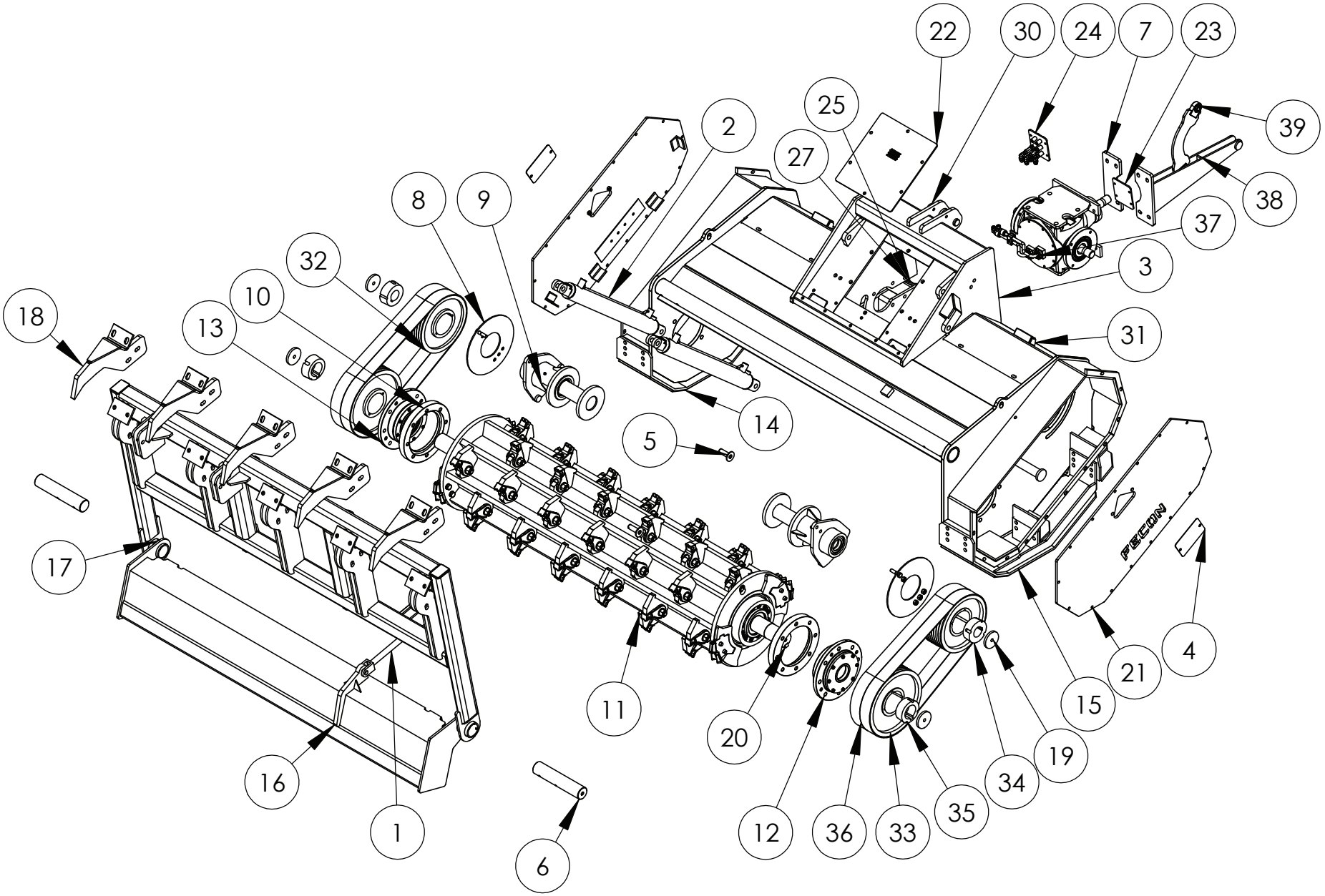
> Fecon Inc. encourages you and your employees to familiarize yourselves with your new equipment and to stress safe operation.

>This symbol  is used to call attention to safety procedures.

Read all the instructions in this manual before operating the equipment.



BH350-PTO ASSEMBLY



BH350-PTO PARTS LIST

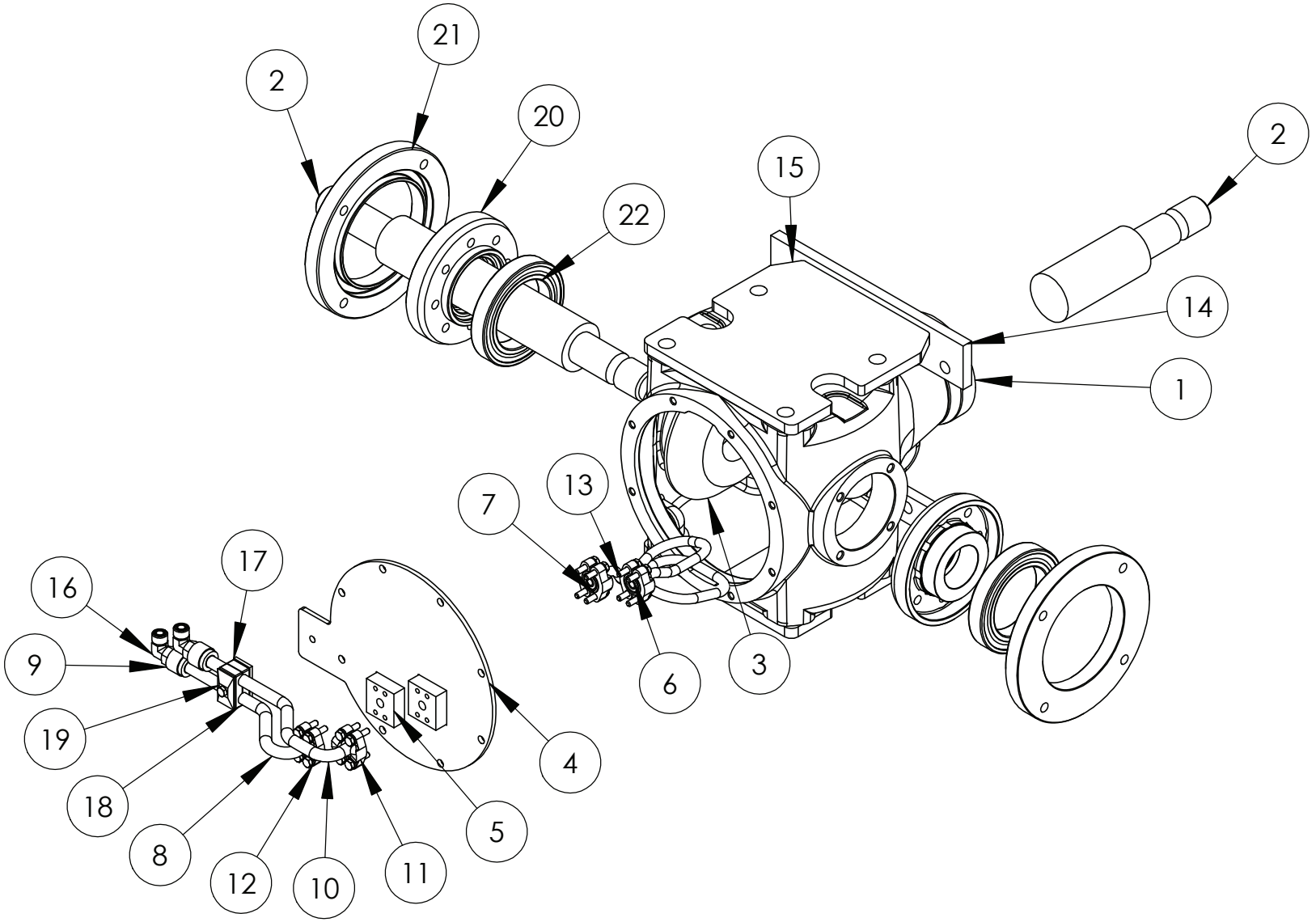
ITEM NO.	BH350-PTO P/N	BH350PTO-3000 P/N	DESCRIPTION	QTY.
1	182208		3 X 10 WELDED CYLINDER	1
2	182212		CYL HYD 3 X 30 WELDED PUSHBAR	2
3	BH373-01	BH373-21	Box Weld	1
4	BH055-23		BELT ACCESS COVER FAB BH040 AND LARGER	2
5	BH058-13		Pin 1" x 3" L Door Cyl	2
6	BH257-37		Door Hinge Pin	2
7	BH266-11A		Gearbox Arm Mount Plate	1
8	BH288-04		Drive Bearing Retainer Weld	2
9	BH290-31		PTO Drive Bearing Asm	2
10	BH354-31		Bolting Flange BH350 Rotor Bearing	2
11	BH355-02	BH355-14	ROTOR ASM	1
12	BH355-11		ROTOR BEARING ASM FLOAT BH350	1
13	BH355-12		ROTOR BEARING ASM FIXED BH350	1
14	BH368-01		Skid Shoe Weld BH350	1
15	bh368-02		Skid Shoe Weld BH350	1
16	BH363-02A	BH363-28	Door Weld BH350 PTO	1
17	BH363-29C	BH363-30	Pushbar Asm	1
18	BH363-32		Drag Rake Tooth, Low Profile	5
19	BH356-26		Washer 4 x 11/16 x 1/2" th	4
20	BH357-21		Key 350 Rotor	2
21	BH358-04B		Beltcover Weld BH350	2
22	BH371-21C		Gearbox Cover BH350 PTO	1
23	BH371-27		Bulkhead Cover Plate	1
24	BH371-28		Bulkhead Mount Plate	1
25	BH371-33		Lift Pin Side Washer 1/2"	4
26	BH371-30		Access Cover	1
27	BH371-34		Lift Pin Side Washer 1/4"	2
28	BH372-27		Lift Pin Wear Bushing	2
29	BH373-02		Lower Mount Pin 350 PTO	2
30	BH373-03		Upper Mount Pin Weld 350 PTO	1
31	BH373-07A		Driveline Cover Weld 350 PTO	2
32	BH504		Sheave 10.9 5V 3 gr 3020	2
33	BH505		Sheave 12.5 5V 3 gr 3020	2
34	BH506		Bushing TL 3535 x 2 1/2" X 5/8" KW	2
35	BH507		Bushing TL 3535 x 2 1/2" X 5/8" KW	2
36	BH510		BELT 5VX 4 GR 100"	4
37	BH760040P03F		GEARBOX B&P 2200 W/PVT SYSTEM BH350	1
38	BH7958807F		Gearbox Pivot Arm Weld	1
39	BH79580805		CONTROL BAR	1

NOTE PARTS NOT SHOWN:

PLUMBING KIT - BH187-45
PTO DRIVE SHAFT - RT2250027

PARTSNOTED IN THE BH350PTO-3000 COLUMN ARE ONLY TO BE ORDERED FOR THE 3000.

GEARBOX B&P 2200 W/PVT SYSTEM BH350



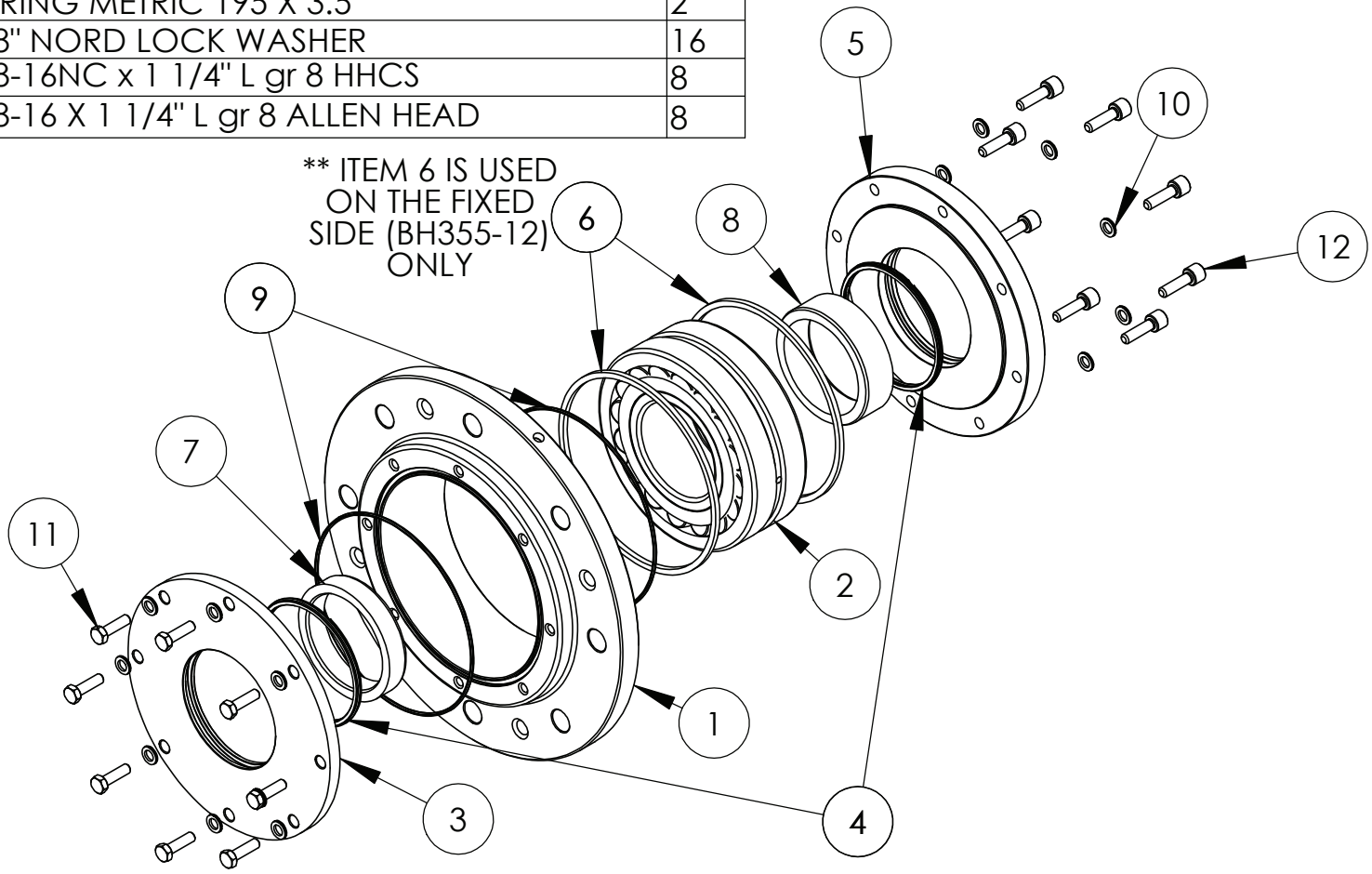
GEARBOX B&P 2200 BOM

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	290290205	GEARBOX HOUSING	1
2	BH7600-2	GEARBOX INPUT SHAFT	1
3	BH7600-3	GEAR	2
4	BH371-91	GEARBOX COVER FOR COOLING	1
5	HFACB-8-8	1/2" CODE 61 CONNECTOR BLOCK	2
6	BH371-92A	GEARBOX COOLING PIPE	1
7	HF8T-8SF	STRAIGHT CODE 62 FLANGE	4
8	BH371-93	GEARBOX COOLING PIPE	1
9	HF835-8	#8 SAE ORING WELD HALF COUPLING	2
10	BH371-94	GEARBOX COOLING PIPE	1
11	HF8PA	STRAIGHT PIPE CODE 61 FLANGE HEAD	8
12	W05L	1/4" LOCKWASHER	16
13	B05-18	5/16-18NC x 2" L gr 8 HHCS	17
14	BH266-13	GEARBOX ARM MOUNT	2
15	BH266-12	GEARBOX MOUNT PLATE	2
16	HFTA3405-8	#8 FACE SEAL TO #8 ORING 90 EL	2
17	161810-02	CLAMP TUBE TWIN 5/8" BASE	1
18	161810-01	CLAMP TUBE TWIN 5/8" PLASTIC	2
19	161810-03	CLAMP COVER 5/8 TWIN	1
20	BH76004206	GEARBOX PIVOT FLANGE BH350 PTO	2
21	BH76004207	GEARBOX PIVOT OUTER FLANGE	2
22	BH7600-1	GEARBOX OUTPUT SHAFT	1
23	6020_2RS1ASM	BEARING	2

ROTOR BEARING HOUSING ASSEMBLY- BH350

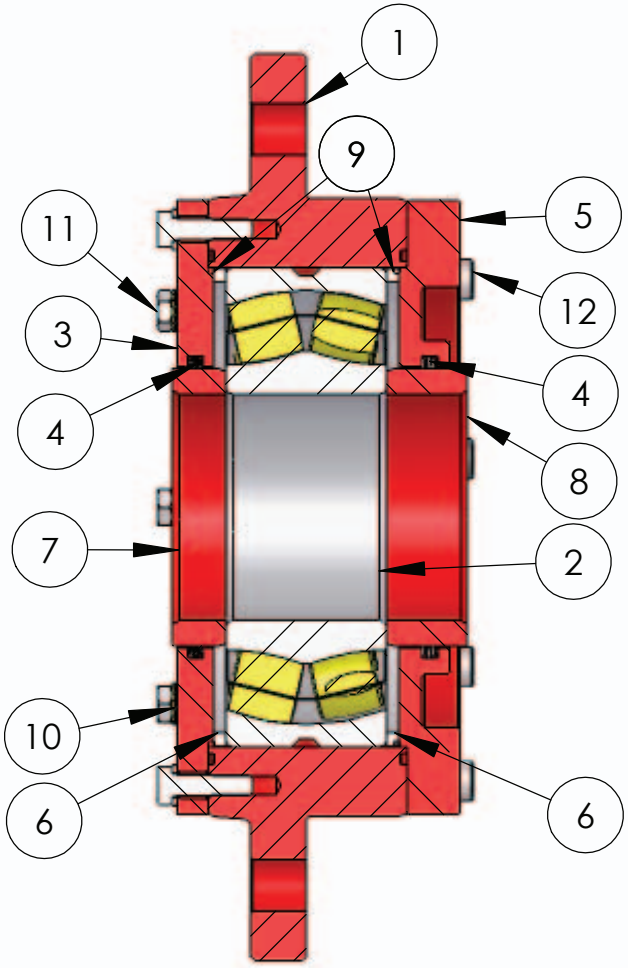
BH355-11(FLOAT) - BH355-12-(FIXED)

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BH354-21	BH350 ROTOR BEARING HOUSING	1
2	71472	ROLLER BEARING	1
3	BH354-22	OUTER BEARING SEALI PLATE	1
4	BH1405ISKD110	LAMINAR RING SET 120 MM (3PIECE)	2
5	BH354-23	INNER BEARING SEAL PLATE	1
6	BH354-30	FIXED BEARING SPACER RING BH350	2
7	BH1307004	ROTOR BEARING OUTER SPACER RING BH350	1
8	BH1307005	ROTOR BEARING INNER SPACER RING BH350	1
9	BH19195035	O-RING METRIC 195 X 3.5	2
10	W06NL	3/8" NORD LOCK WASHER	16
11	B06-1605-8	3/8-16NC x 1 1/4" L gr 8 HHCS	8
12	B06-16A	3/8-16 X 1 1/4" L gr 8 ALLEN HEAD	8



BH355- 11 / BH355-12 DETAIL

BH355-12 FIXED

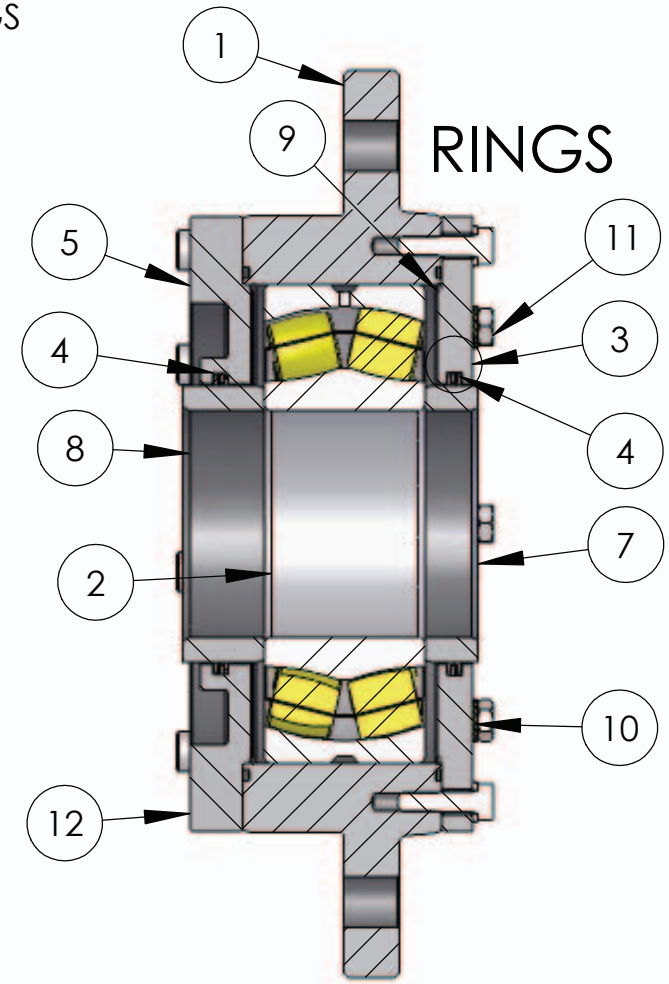


SECTION A-A
SCALE 1 : 3

NOTE: LARGEST RING MUST BE
BETWEEN TWO SMALLER RINGS

DETAIL RINGS
SCALE 3 : 4

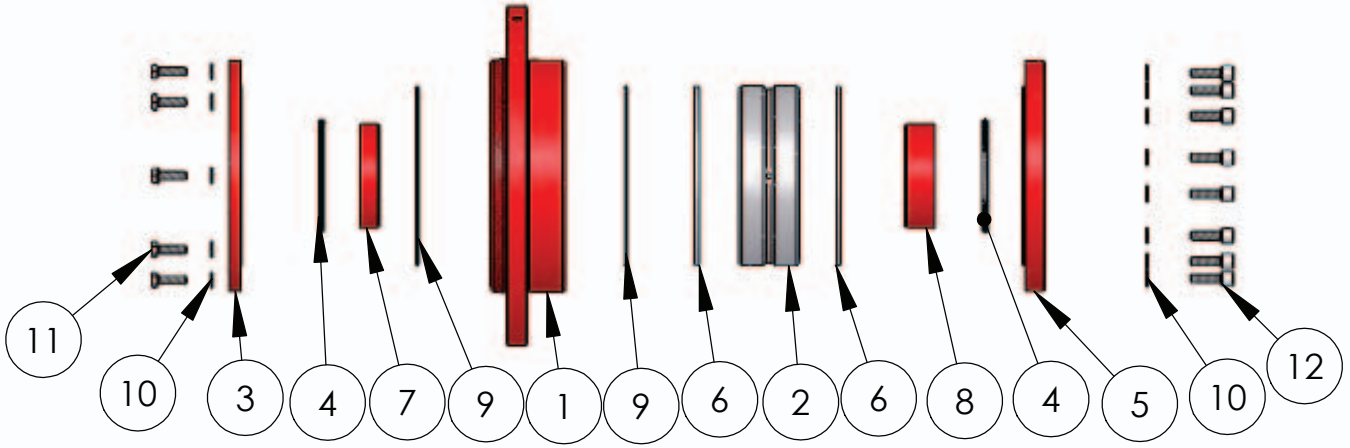
BH355-11 FLOATING



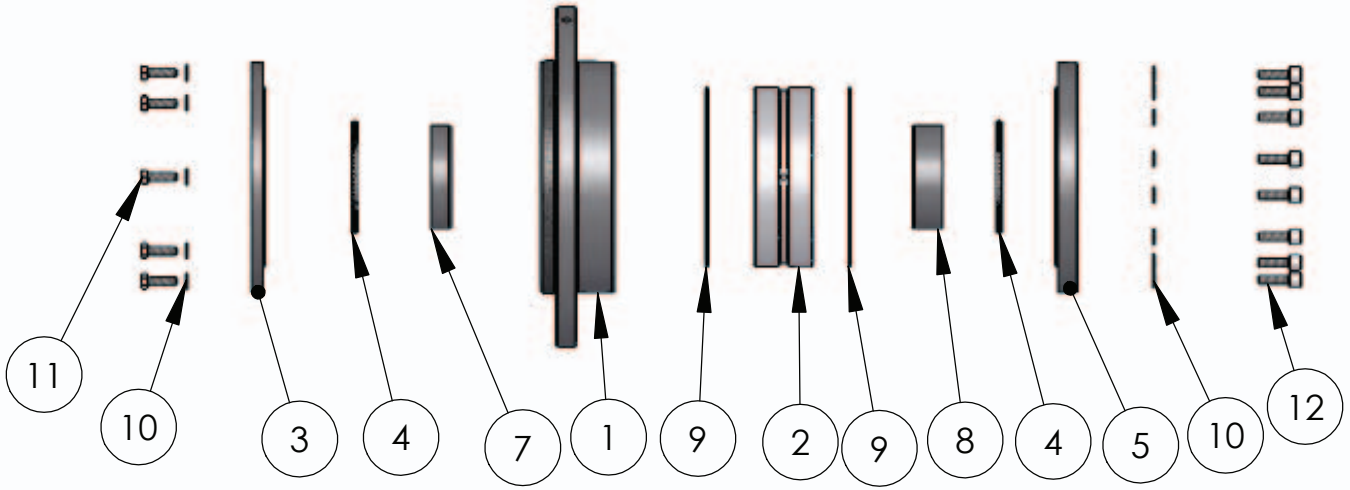
SECTION B-B
SCALE 1 : 3

BH355-11/ 355/12 SIDE VIEW

BH355-12 - FIXED BEARING



BH355-11 - FLOATING BEARING

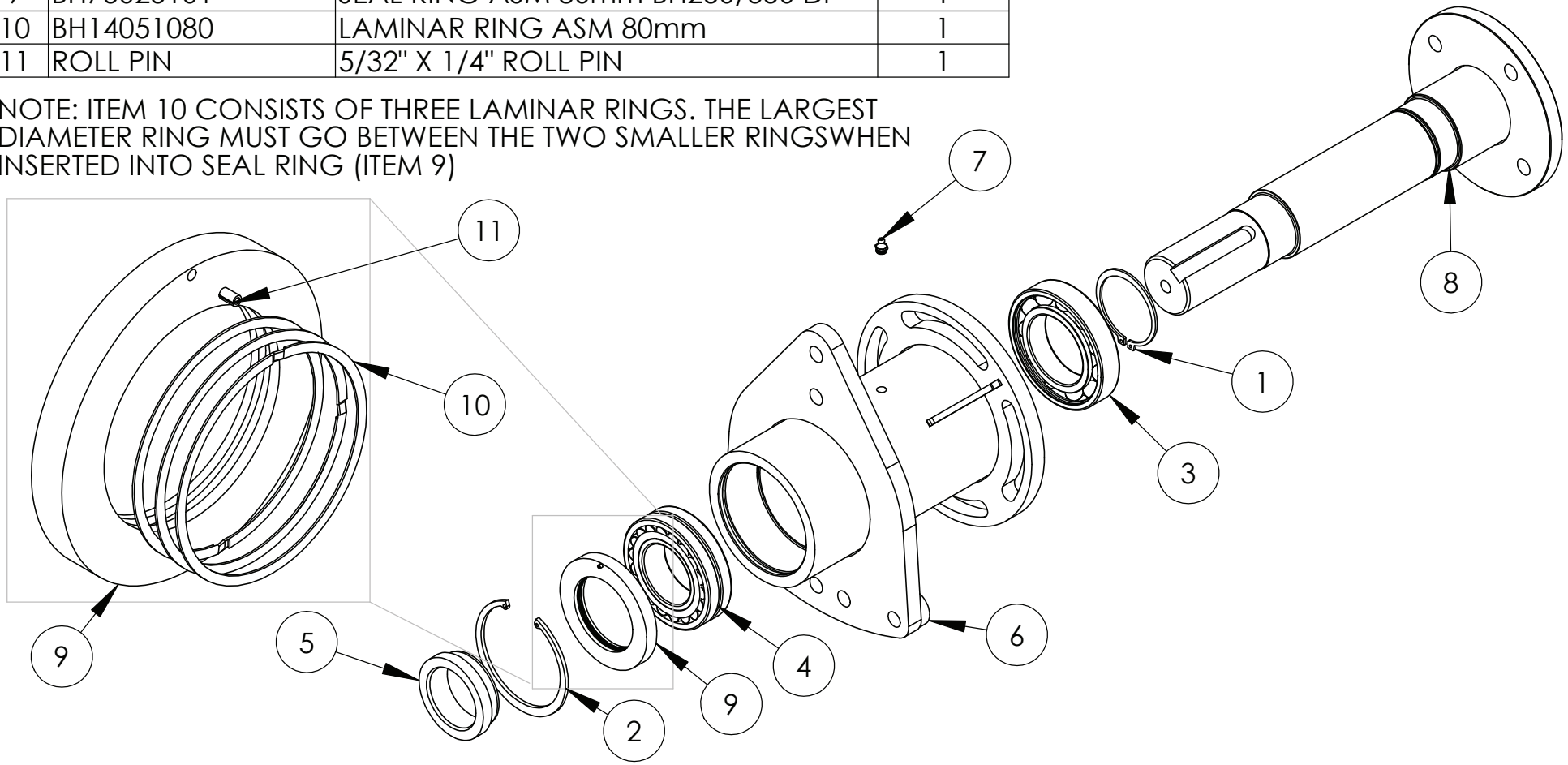


PTO Drive Bearing Asm

BH290-31

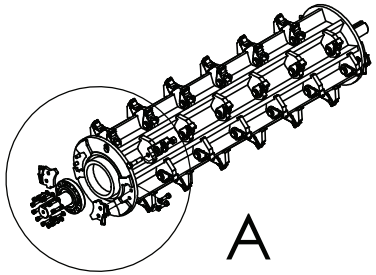
ITEM NO.	PART NUMBER	DESCRIPTION	BH290-31 /QTY.
1	010-01-011	Snap Ring 75mm External	1
2	011-01-024	SNAP RING 120mm INTERNAL	1
3	180043	Bearing Ball 6215-RS1	1
4	71474	22213 SPHERICAL ROLLER BEARING	1
5	BH1303001	SPACER RING (88.9x65x27) 250 DRIVE	1
6	BH289-20	Drive Bearing Housing Mach	1
7	GFA18PT	GREASE FITTING: 1/8 PT STRT	1
8	BH289-31	Drive Shaft Mach PTO	1
9	BH75025101	SEAL RING ASM 80mm BH250/350 Dr	1
10	BH14051080	LAMINAR RING ASM 80mm	1
11	ROLL PIN	5/32" X 1/4" ROLL PIN	1

NOTE: ITEM 10 CONSISTS OF THREE LAMINAR RINGS. THE LARGEST DIAMETER RING MUST GO BETWEEN THE TWO SMALLER RINGSWHEN INSERTED INTO SEAL RING (ITEM 9)



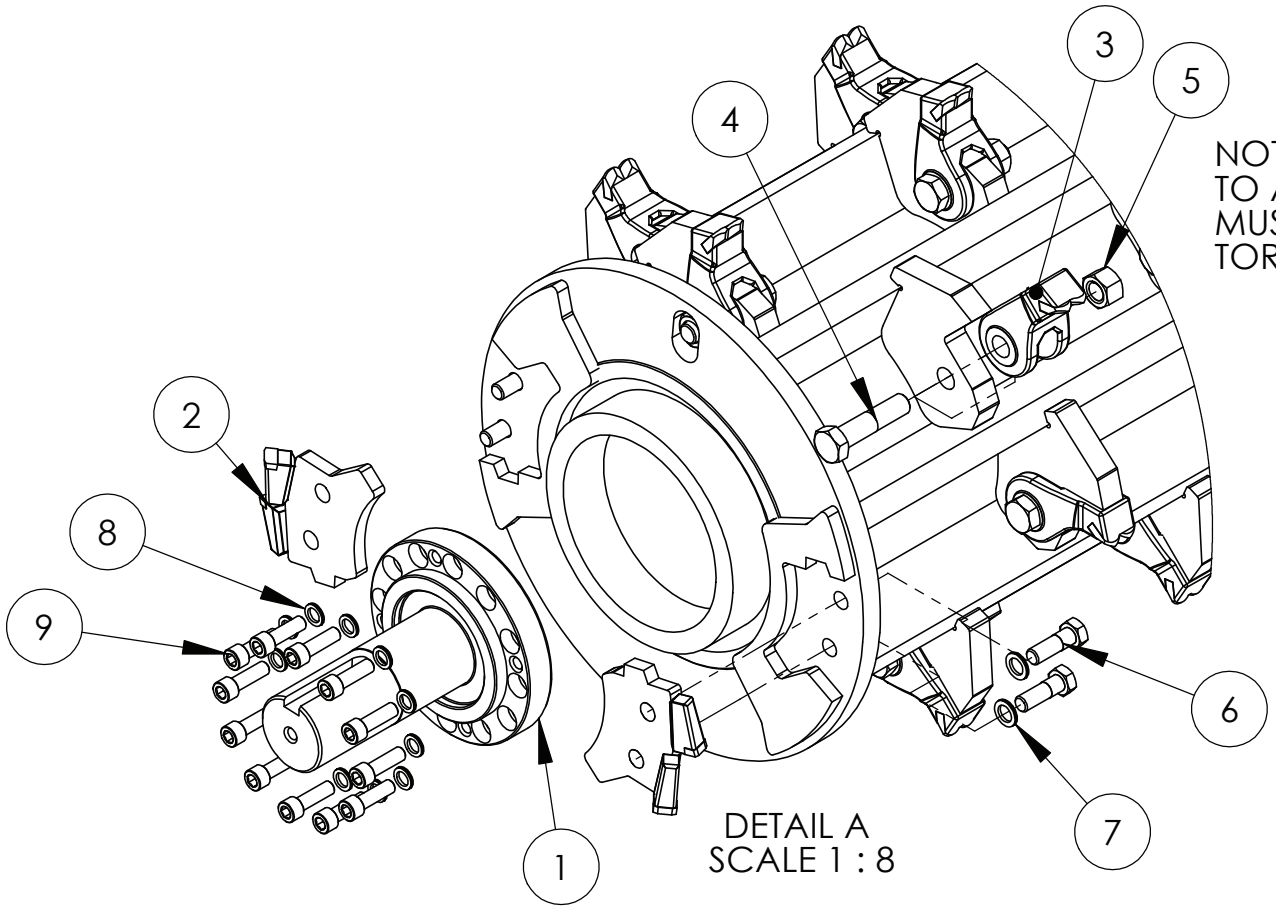
BH350 ROTOR ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BH354-01	STUB SHAFT MACH BH350 ROTOR	2
2	BHUM580300302R	SIDE CUTTER WELD LEFT	4
3	BH46BFS26	TOOL STD BULL HOG	48
4	B24M-2100-10	M24-2.0 x 100mm gr 10.9 HHCS	48
5	N24M-2.0-10	M24-NUT	48
6	B12-1009-8	3/4-10NC x 2 1/4" L gr 8 HHCS	8
7	w12nl	3/4 NORD LOCK WASHER	8
8	w10nl	5/8 NORD LOCK WASHER	24
9	B10-1108A-8	5/8-11NC x 2" L gr 8 Allen Head	24



STANDARD ROTOR - BH355-02

3000 ROTOR - BH355-14

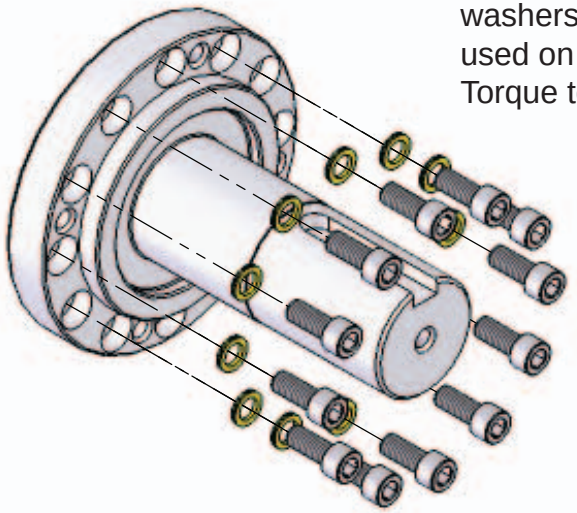


DETAIL A
SCALE 1 : 8

NOTE: PROPER TORQUE MUST BE APPLIED TO ALL BOLTS AND NORDLOCK WASHERS MUST BE USEDWHEN CHANGING TOOLS. TORQUE SETTINGS AS FOLLOWS:

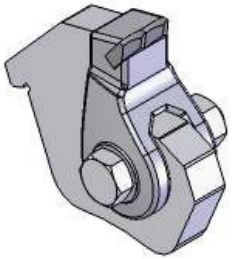
ITEM 5 TORQUE TO 590 FT-LBS
ITEM 9 TORQUE TO 180 FT-LBS
ITEM 6 TORQUE TO 368 FT-LBS

ROTOR ASSEMBLY DETAILS

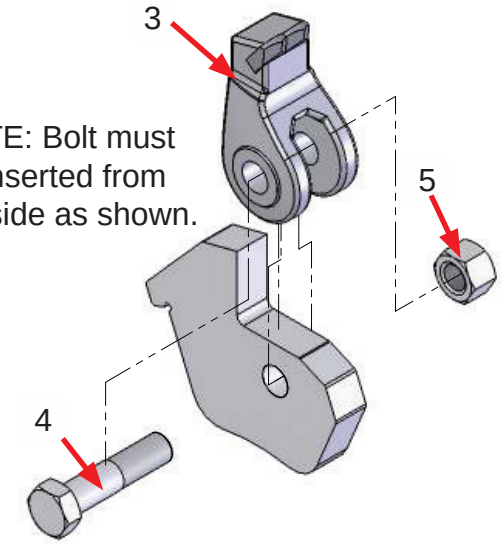


NOTE: Nord Lock washers must be used on stub shaft. Torque to 180 ft-lbs

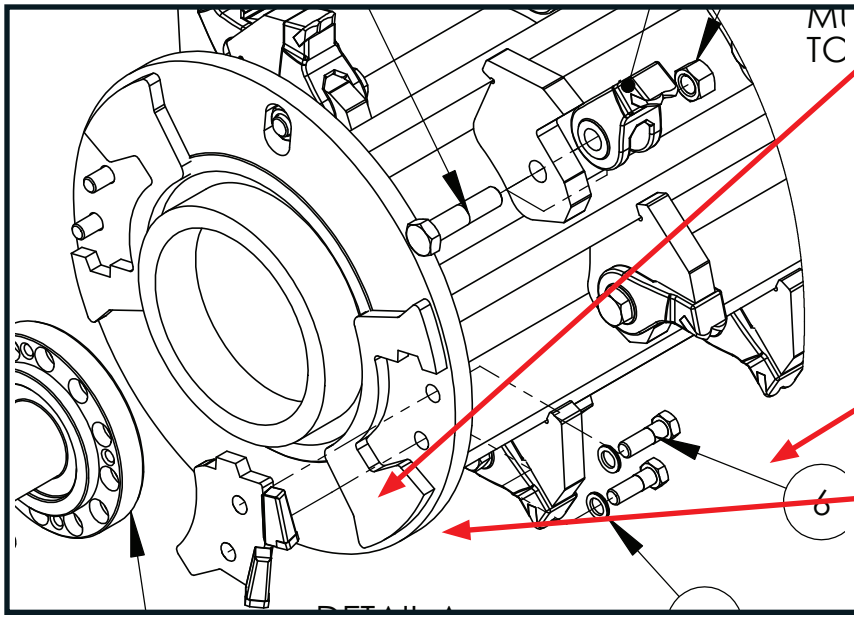
DETAIL - B



NOTE: Bolt must be inserted from left side as shown.



NOTE:The tool holder is part of the welded rotor. Items 3, 4 and 5 can be removed, and replaced if needed. Torque to 590 ft-lbs



LHAbrasion Plate- BHUM580300302L
RHAbrasion Plate- BHUM580300302R

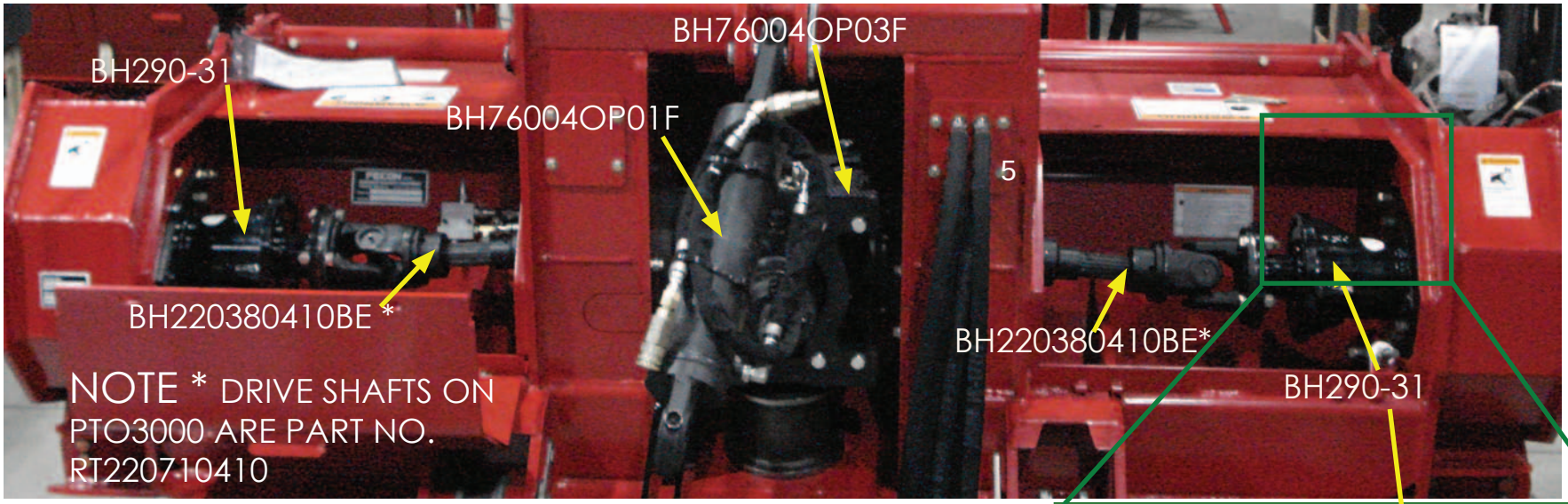
DETAIL - C

NOTE:When installing the Abrasion Plates use Nord Lock washers and Torque to 368 ft-lbs.

Replacement chisel bit for abrasion plate- BH46BFZ25G

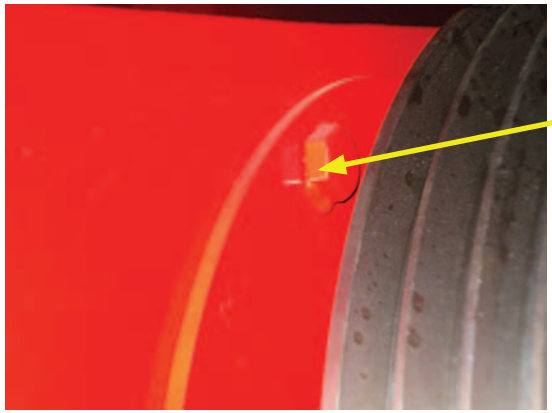
*

BH350F-PTO DRIVE ASM



TO ADJUST BELT TENSION:

1. LOOSEN BOLTS ON THE BOLTING FLANGE
2. ADJUST THE LOCKING NUTS ON THE TENSIONING ROD TO ACHIEVE THE PROPER TENSION ON THE BELT.

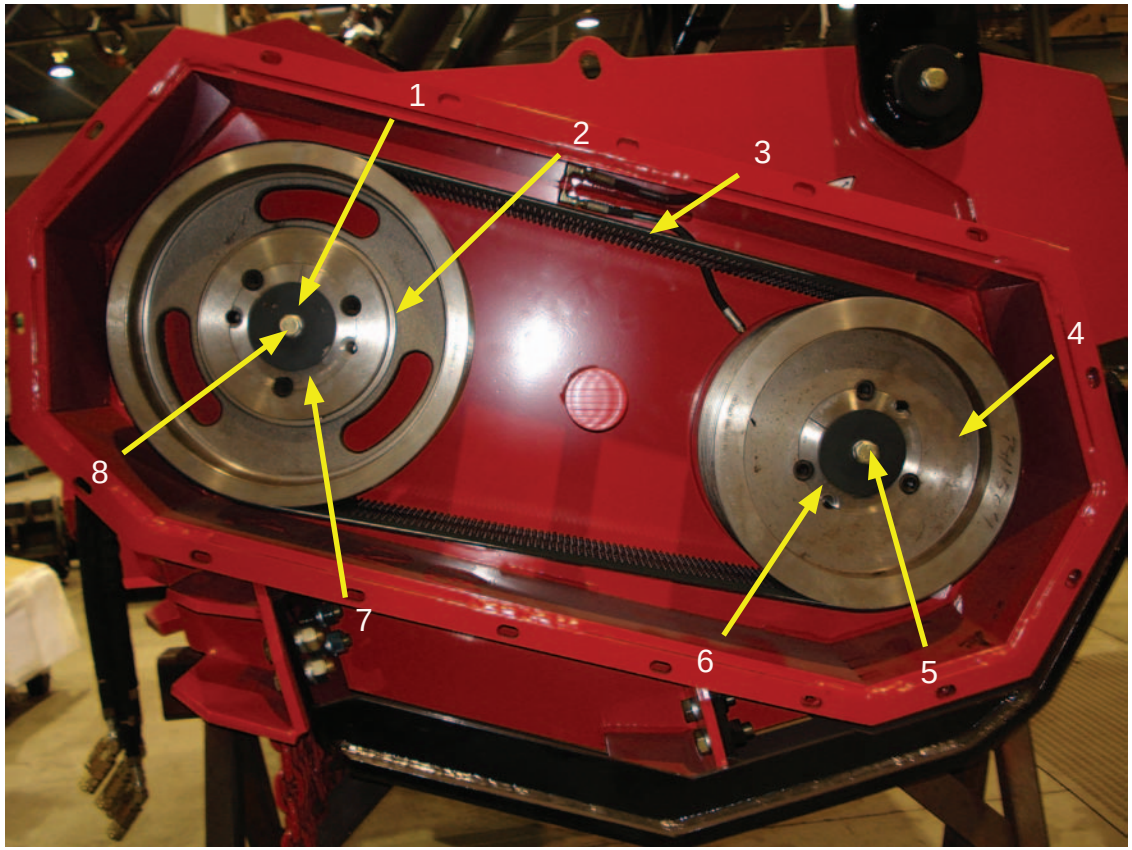


DRIVE BEARING BOLTING FLANGE
BH288-04

BELT TENSIONER -BH358-29

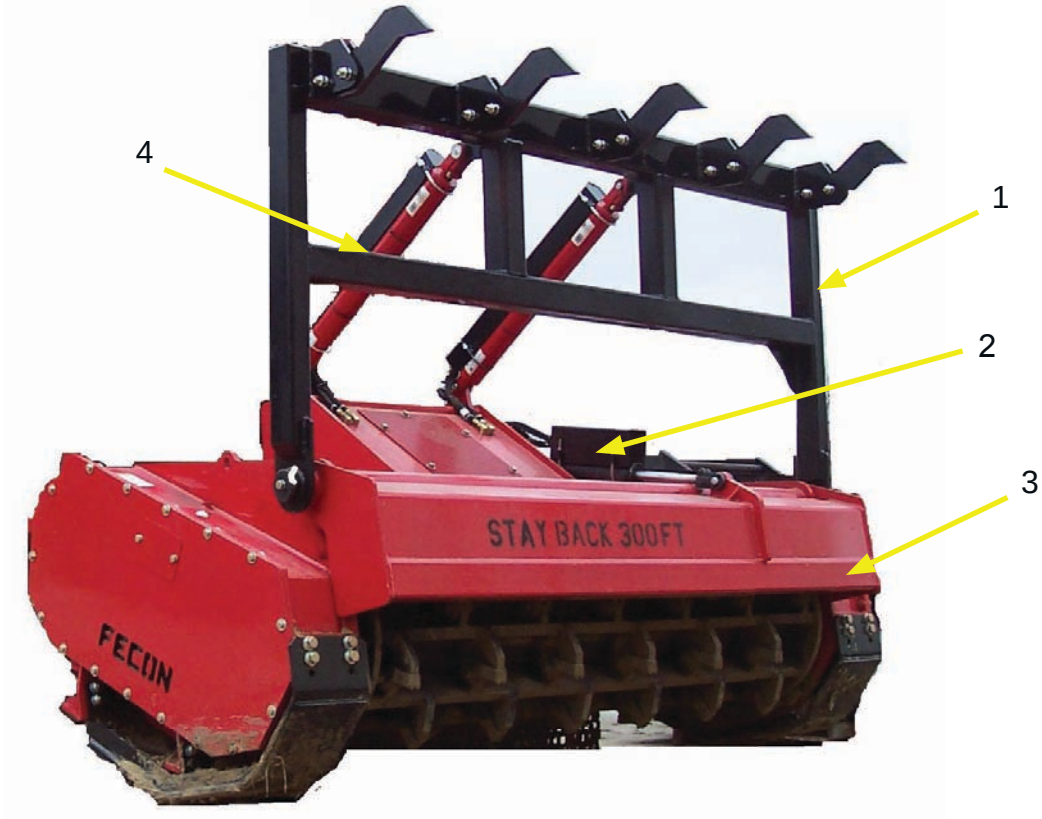
BH350F-PTO BELT DRIVE ASM

ITEM	PART NO.	DESCRIPTION	QTY
1	BH356-26	WASHER 4 OD X 11/16 X 1/2"TH	4
2	BH505	SHEAVE 16.0 5V 8 GR 4040 TL	2
3	BH510	BELT 5VX 4 GR 100"	2
4	BH504	SHEAVE 14" 5V 8 GR 4040 TL	2
5	B10-1110-8	BOLT 5/8"-11X2-1/2 "-8	2
6	BH508	BUSHING TL 4040 3 1/2 X 7/8" KW	2
7	BH506	BUSHING TL 4040 2 1/2 X 5/8" KW	2
8	B20M-2.5160-10.9	BOLT, HEX HD M20X2.5X160L GR10.9	2

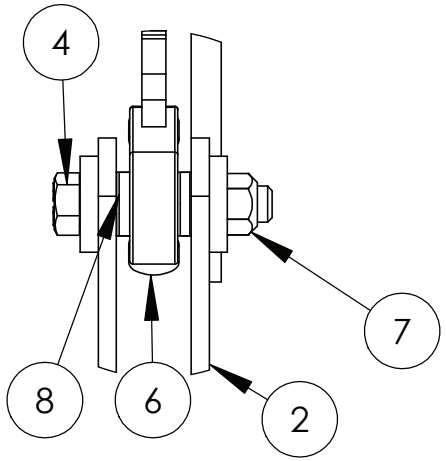


BH350-PTO PUSHBAR & TRAPD

ITEM	STD PART NO.	3000 PART NO.	DESCRIPTION	QTY.
1	BH363-29	BH363-30	PUSHBAR ASSEMBLY BH350 PTO W/ RT	1
2	182208	182208	CYL HYD 3 X 10 WELDED CYLINDER	1
3	BH363-02	BH363-28	DOOR WELD BH350 PTO	1
4	182212	182212	CYL HYD 3 X 30 WELDED PUSHBAR	2



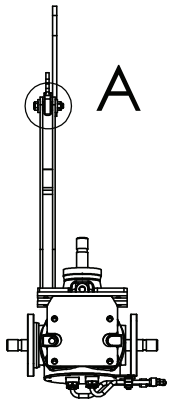
BH760040P03F GEARBOX W 2200 PIVOT SYSTEM

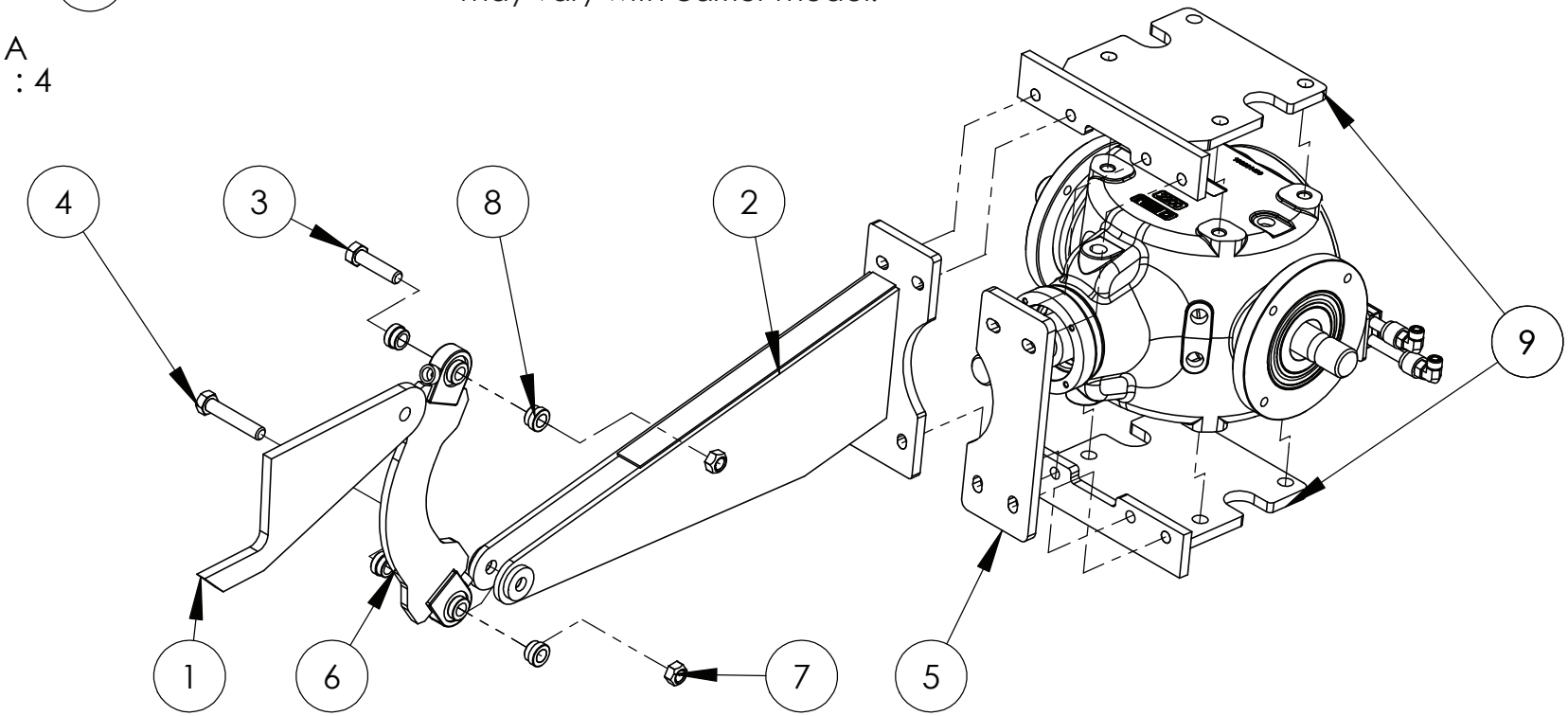


DETAIL A
SCALE 1 : 4

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	43501-95	ROTATING LEVER, GEARBOX	1
2	43523-30	ROTATOR ARM WELD	1
3	B12-1012-8	BOLT, 3/4-10 X 3 L GR8	1
4	B12-1016-8	BOLT 3/4 X 4 GR 8	1
5	BH266-11A	Gearbox Arm Mount Plate	1
6	BH79580805	CONTROL BAR	1
7	N12-10L-8	3/4"-10 LOCKNUT GR8	2
8	RT75013310	REDUCTION SLEEVE	4
9	BH75014110	SIDE PANEL, GEARBOX	1

NOTE: Connection to carrier
may vary with carrier model.

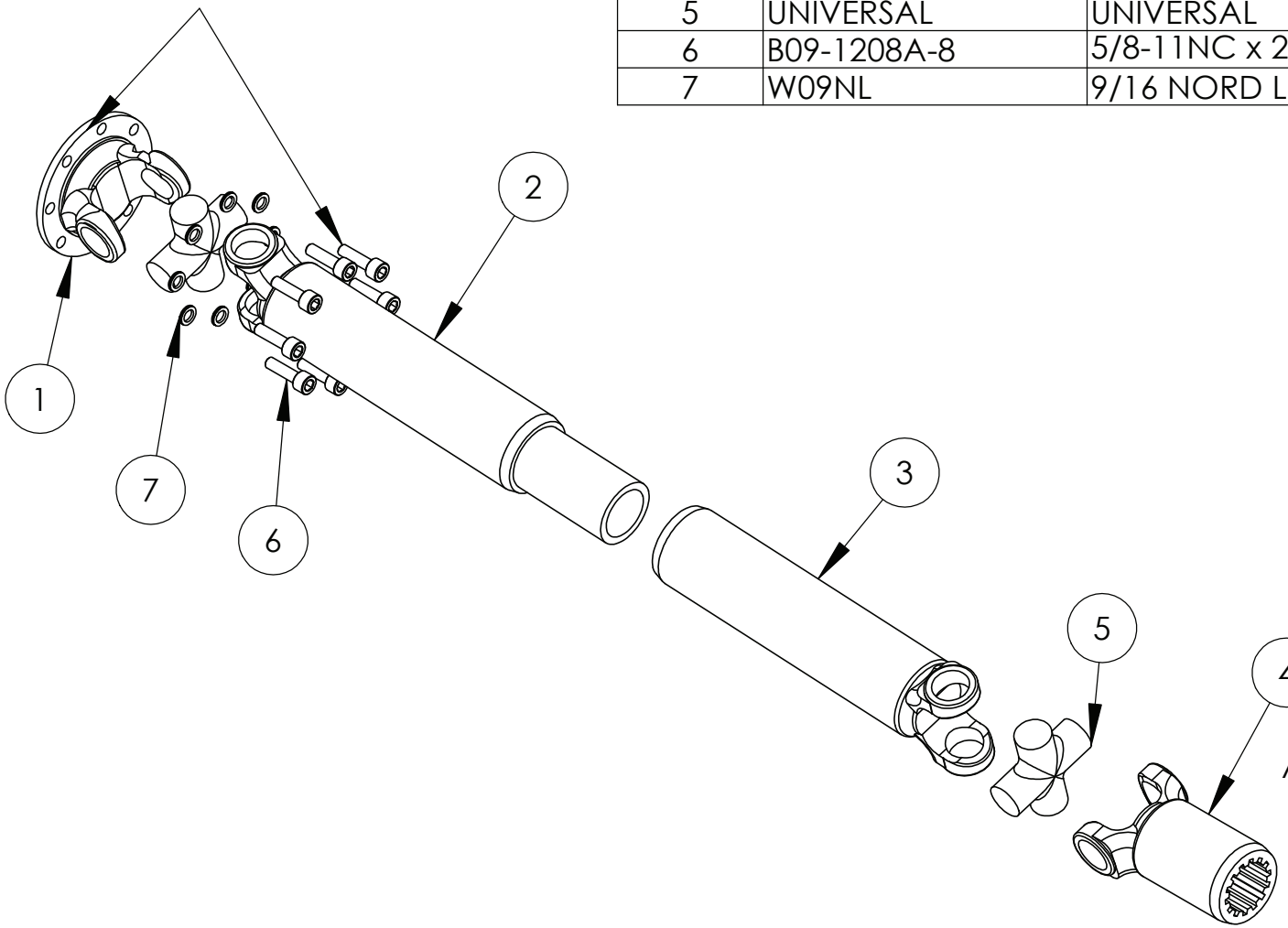




RT2250027 DRIVESHAFT ASM

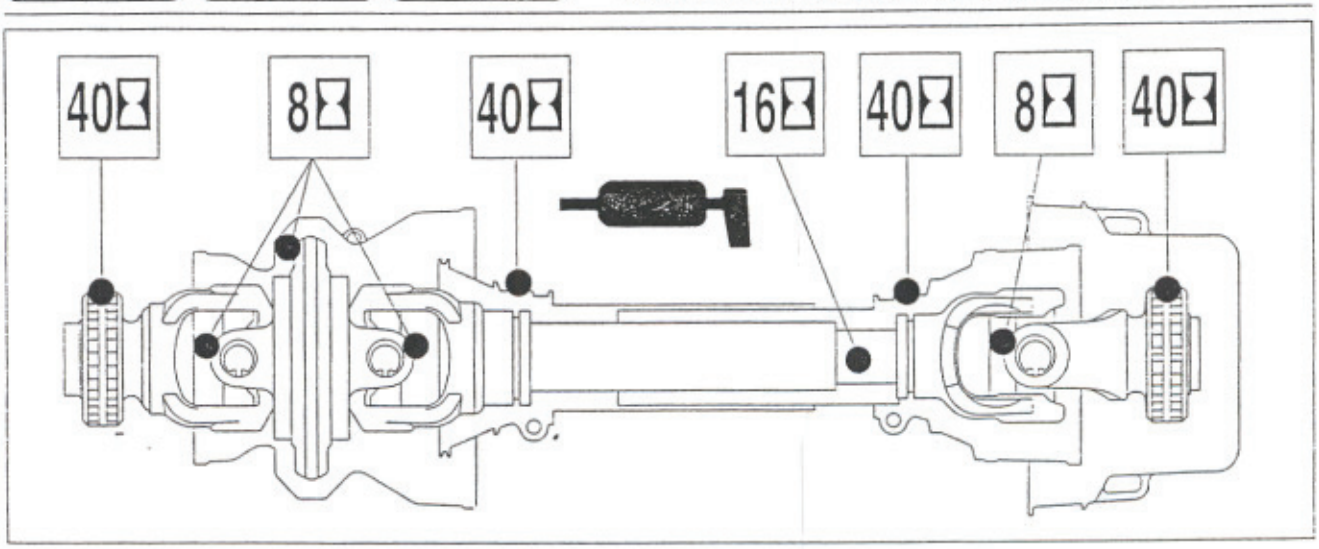
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	FLANGE, PTO	FLANGE, PTO	1
2	DRIVE SHAFT 2 PTO	DRIVE SHAFT 2 PTO	1
3	DRIVE SHAFT PTO	DRIVE SHAFT PTO	1
4	SPLINED SHAFT PTO	SPLINED SHAFT PTO	1
5	UNIVERSAL	UNIVERSAL	2
6	B09-1208A-8	5/8-11NC x 2" L gr 8 Allen Head	8
7	W09NL	9/16 NORD LOCK WASHER	8

ATTACH TO CARRIER LOCKING HUB. TORQUE BOLTS TO 167 FTLBS.

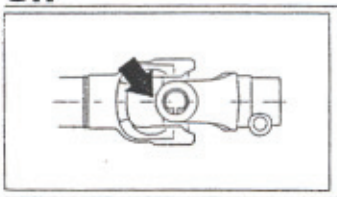


ATTACH TO PTO GEARBOX

- BEFORE ATTEMPTING ANY REPAIR PROCEDURES, ALWAYS USE APPROPRIATE EQUIPMENT SUCH AS SAFETY GLASSES, SAFETY SHOES AND GLOVES.
- *TOUTES LES OPERATIONS DE MAINTENANCE ET DE REPARATION DOIVENT ETRE EFFECTUEES AVEC DES PROTECTIONS ADEQUATES.*
- TODAS LAS OPERACIONES DE MANUTENCION Y DE REPARACION TIENEN QUE SER REALIZADAS CON ADECUADAS PROTECCIONES

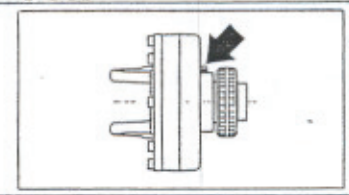


8h



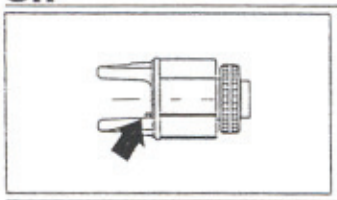
CROSS JOURNAL
CROISILLON
CRUCETA

16h



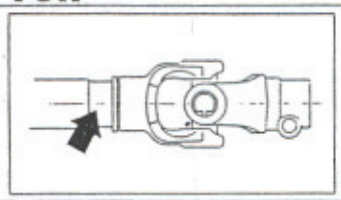
FN - FRICTION TORQUE LIMITER WITH OVERRUNNING CLUTCH
FN - LIMITEUR DE COUPLE A FRICTION AVEC ROUE LIBRE
FN - EMBRAGUE DE DISCOS DE FRICCION CON RUEDA LIBRE

8h



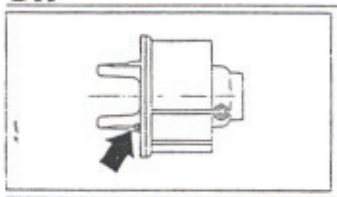
SA - RATCHET TORQUE LIMITER
SA - LIMITEUR DE COUPLE A CAMES
SA - LIMITADOR DE PAR POR PESTILLOS

16h



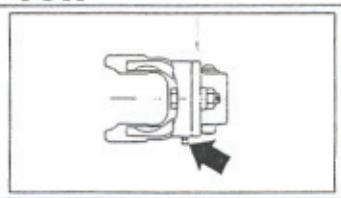
INNER TUBE
TUBE INTERIEUR
TUBO INTERIOR

8h



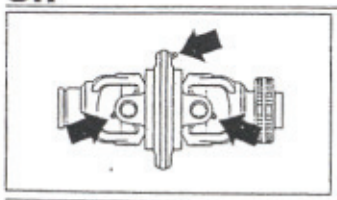
SC - AUTOMATIC TORQUE LIMITER
SC - LIMITEUR DE COUPLE AUTOMATIQUE
SC - LIMITADOR DE PAR AUTOMATICO

40h



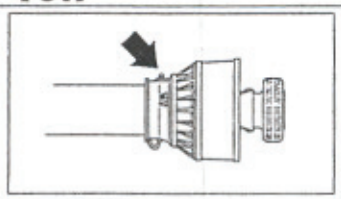
SB - SHEAR BOLT TORQUE LIMITER
SB - LIMITEUR DE COUPLE A BOULON
SB - LIMITADOR DE PAR POR TORNILLO

8h



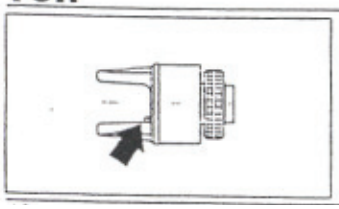
OC - CONSTANT VELOCITY JOINT
JDH - JOINT DOUBLE HOMOCINETIQUE
OC - NUDO HOMOCINETICO

40h



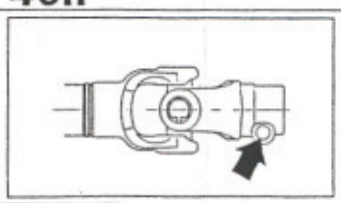
SHIELD RETAINING BEARING
PALIER DU PROTECTEUR
COLLARIN

16h



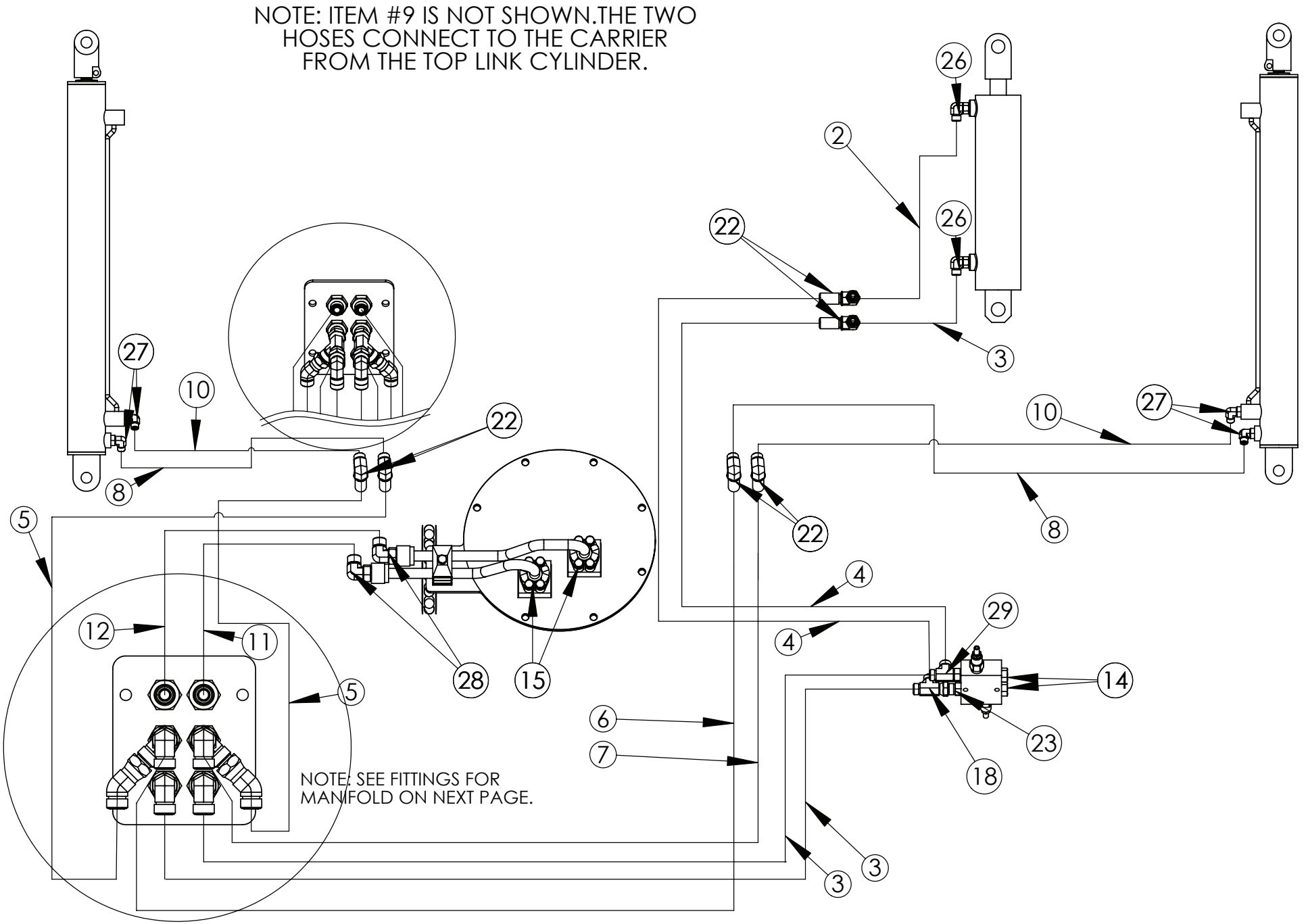
RA - OVERRUNNING
RA - ROUE LIBRE
RA - RUEDA LIBRE

40h



PUSH-PIN
VERROU
PULSADOR

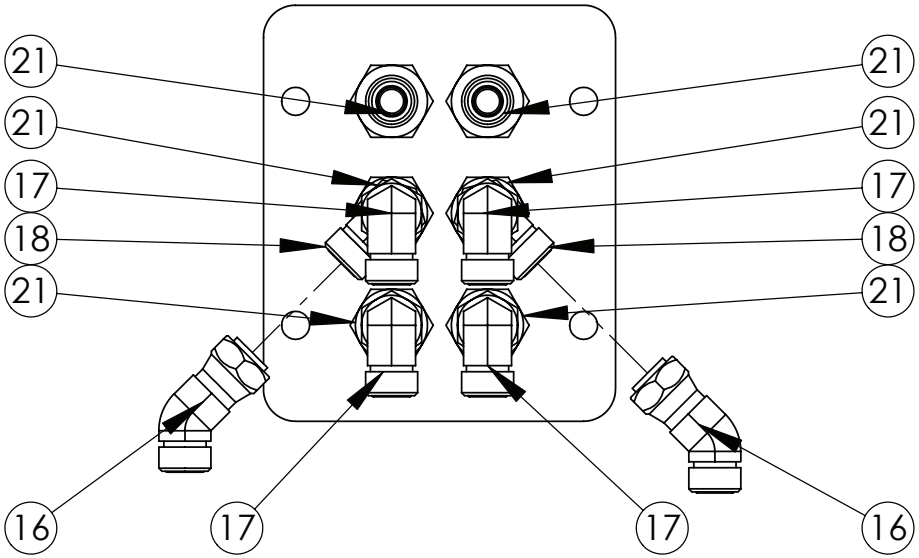
350-PTO Plumbing Layout

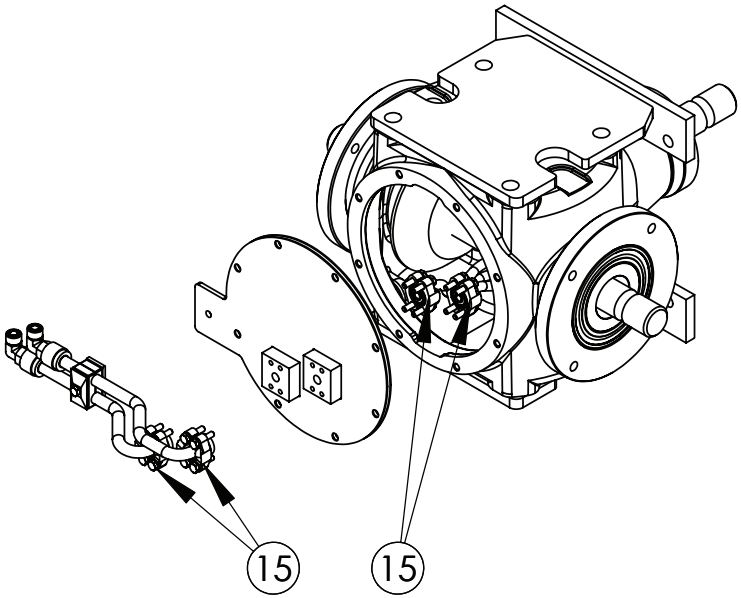


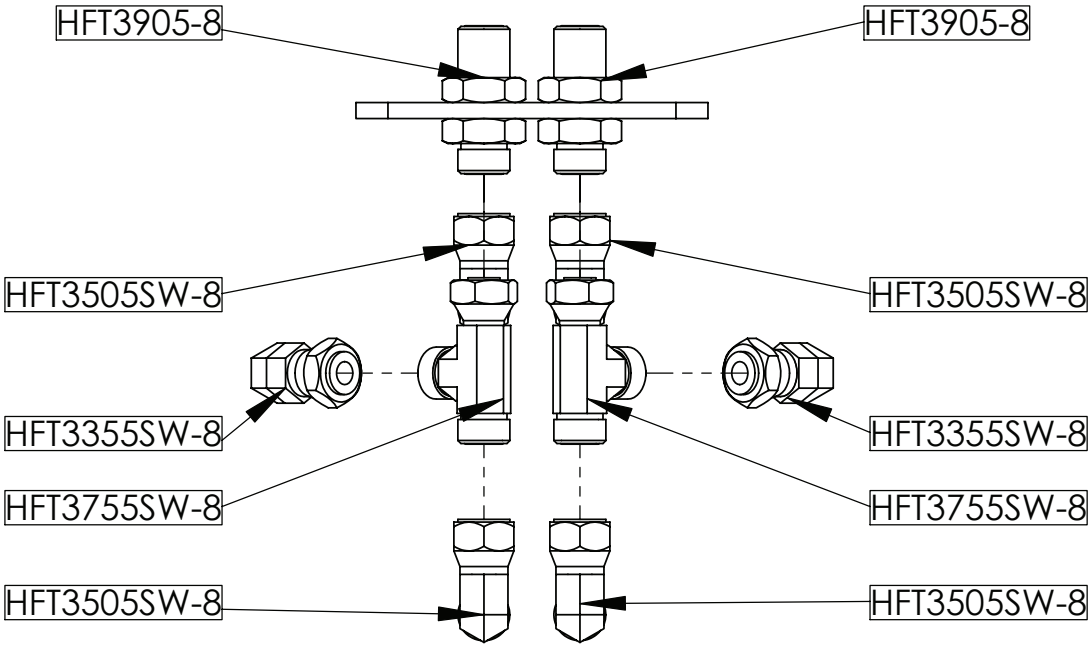
HOSE AND FITTING KIT - BH-HK350-01

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	H06A014SZSZ-P	3/8"100R1X14"L #6 FASEAL FS BE PROT	1
2	H06A027SZSZ-P	3/8"100R1X27"L #6 FASEAL FS BE PROT	1
3	H06A034SZSY	3/8" 100R1X34"L #6 FS->45 EL FS	2
4	H06A053SYPZ-180	3/8"100R1X53"L 45 DEG EL->+FASEAL	2
5	H06A094SZPZ	3/8" 100R1X94"L FASEAL->+FASEAL	2
6	H06A095SHPZ	3/8"100R1X95"#6 90 EL->#8 FASEAL FS	1
7	H06A096SHPZ	3/8"100R1X96"#6 90 EL->#8 FASEAL FS	1
8	H06B016SZSH-P	3/8"100R2X16"L FASEAL->FASEAL 90 EL	2
9	H06B032SZSZ-P	3/8"100R2X32"L #6 FASEAL FS BE W/PR	2
10	H06B018SZSZ-P	3/8"100R2X18"L #6 FASEAL FS BE PROT	2
11	H08A024SZSZ	1/2" 100R1X24"L #8 FASEAL FS BE	1
12	H08A025SZSZ	1/2" 100R1X25"L #8 FASEAL FS BE	1
13	H08B048SZSZ-P	1/2"100R2X48"L #8 FASEAL FS BE PROT	6
14	HF6STP	#6 SAE Straight Thread Plug	2
15	HF8PA	#8 CODE 61 FLANGE KIT	4
16	HFT3355SW-8	#8 Face Seal Swivel 45 deg EL	2
17	HFT3505SW-8	#8 Face Seal Swivel 90 deg EL	2
18	HFT3755SW-6	#6 Face Seal Swivel Run Tee	1
19	HFT3755SW-8	#8 Face Seal Swivel Run Tee	2
20	HFT3890-6-6	#6 FACE SEAL TO 3/8" BSPP 90 EL	2
21	HFT3905-8	#8 FACE SEAL BULKHEAD UNION	6
22	HFT3955-6	#6 FASEAL 90 DEG BULKHEAD UN	6
23	HFTA3105-6	#6 Face Seal to #6 Oring Adapt	1
24	HFTA3355-6-10	#6FACE SEAL TO #10 ORING ADAPTER	2
25	HFTA3355-8-10	#8 FACE SEAL TO #10 ORING 45 EL	6
26	HFTA3405-6	#6 FACE SEAL TO #6 ORING 90 EL	2
27	HFTA3405-6-8	#6 FaSeal to #8 Oring 90 deg	6
28	HFTA3405-8	#8 Face Seal to #8 Oring 90 EL	2
29	HFTA3755-6	#6 ORING TO FACE SEAL RUN TEE	1

HOSE MANIFOLD FITTINGS- BH350-PTO







NOTE: THE CODE 61 FLANGE KITS ARE ON EACH SIDE OF PTO DRIVE BACK PLATE

NOTES:

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